



AND A MANUFACTURING AND TEXTILE PAPER, DEVOTED TO THE UPBUILDING OF SOUTHERN MANUFACTURES AND THE DEVELOPMENT OF THE MATERIAL RESOURCES OF THE SOUTH.

Vol. 7. No. 13.
WEEKLY.

BALTIMORE, MAY 9, 1885

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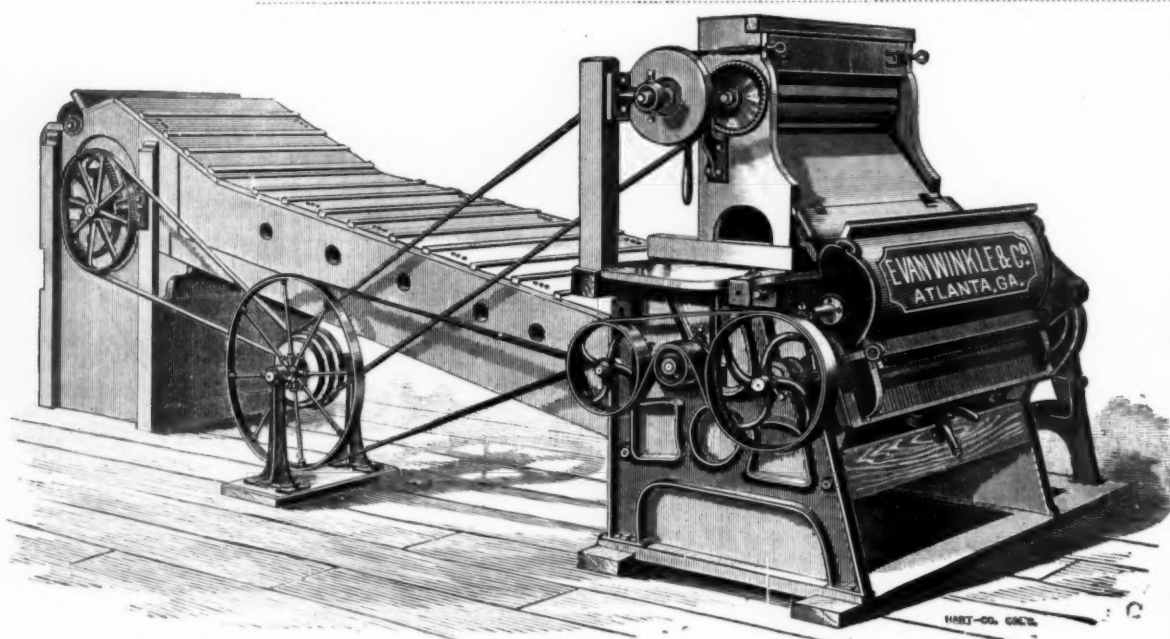
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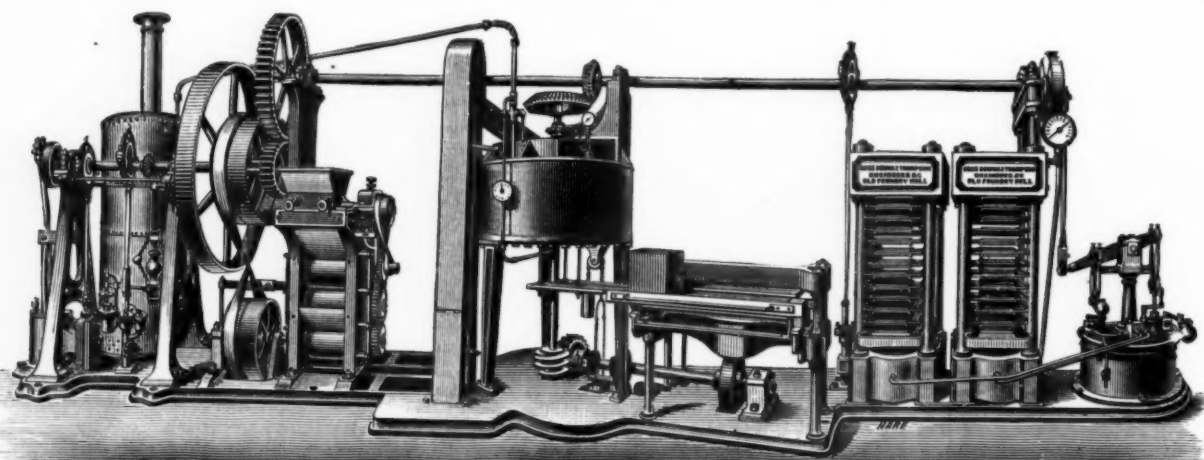
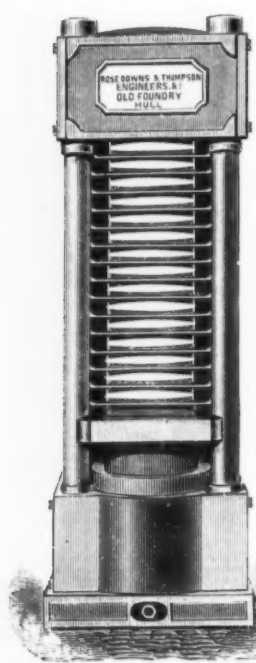


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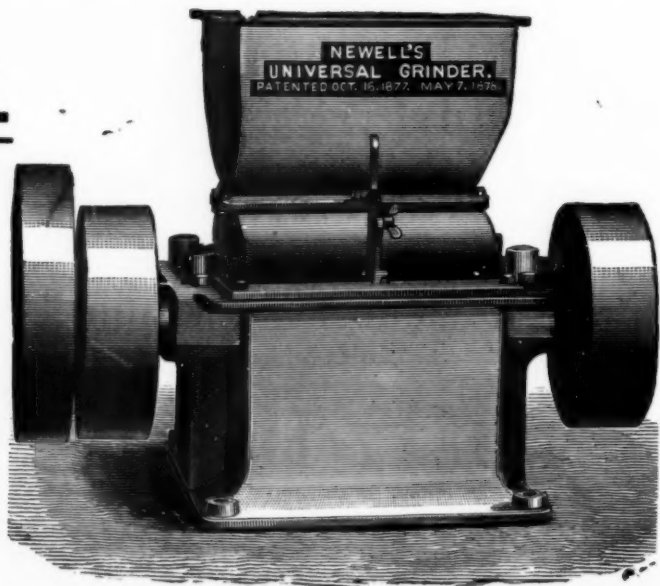
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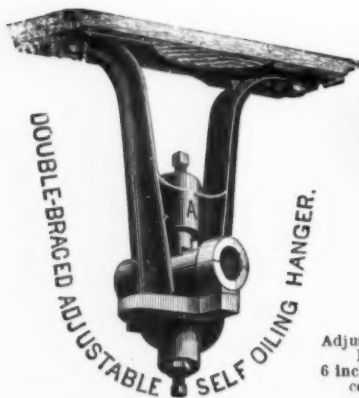
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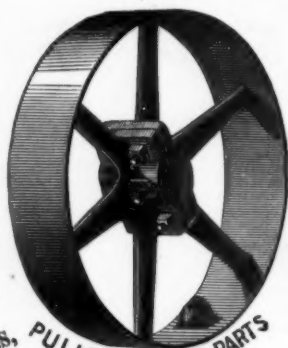
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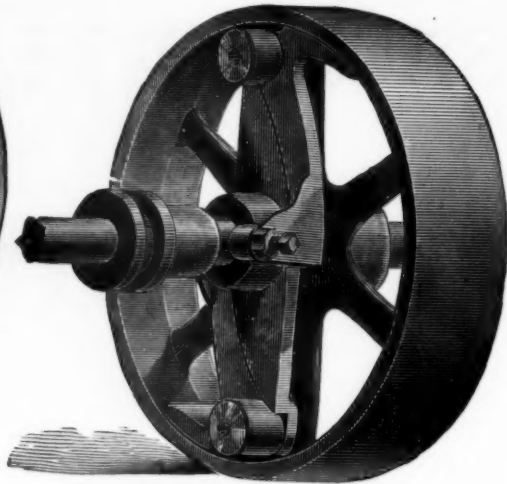
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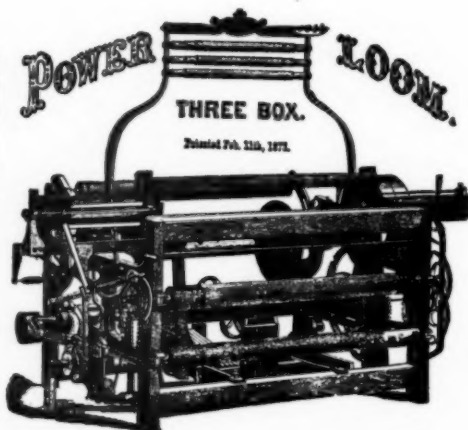
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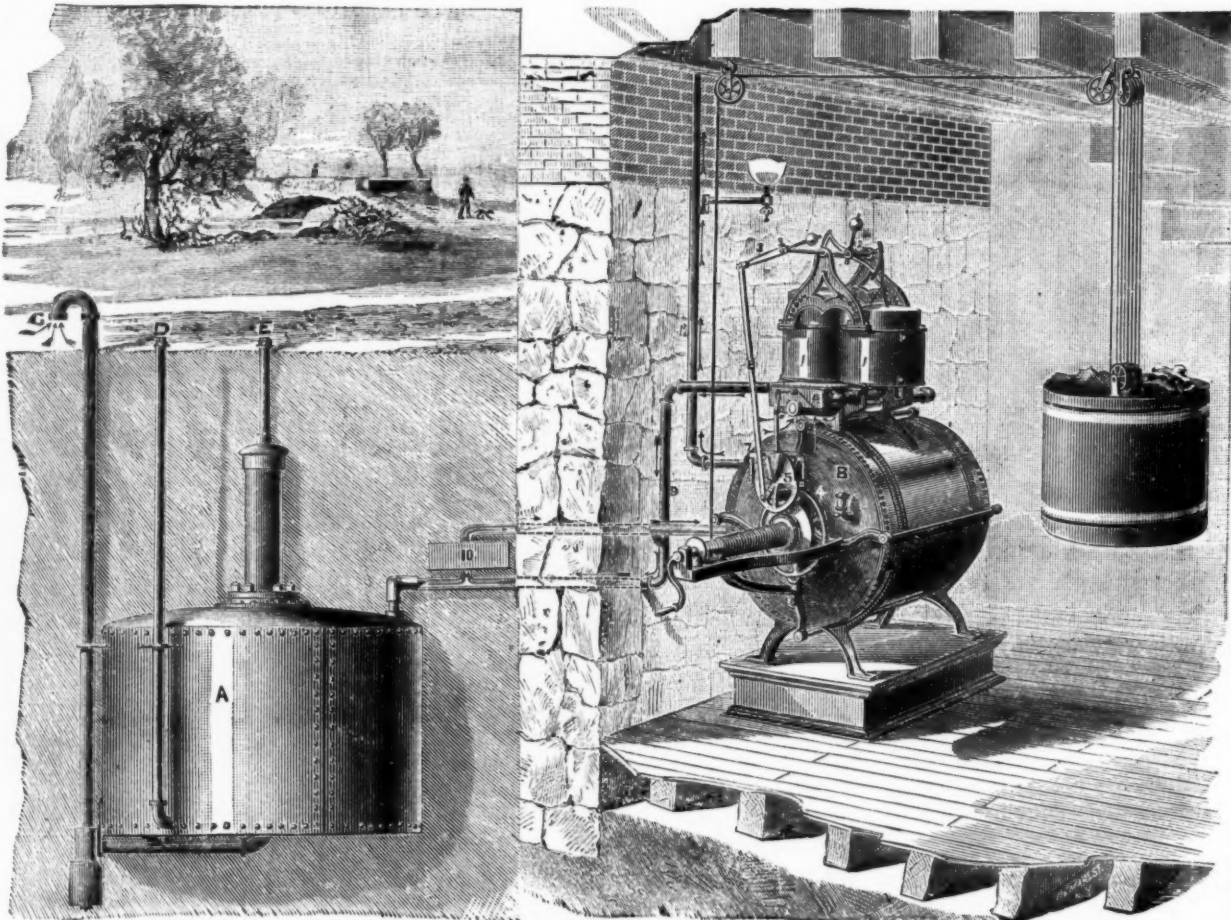
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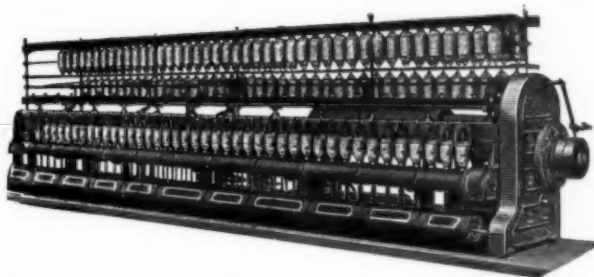
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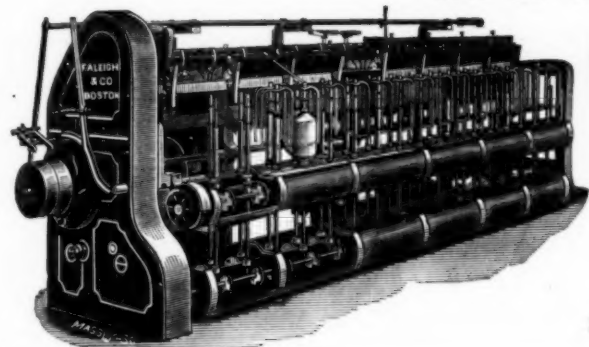
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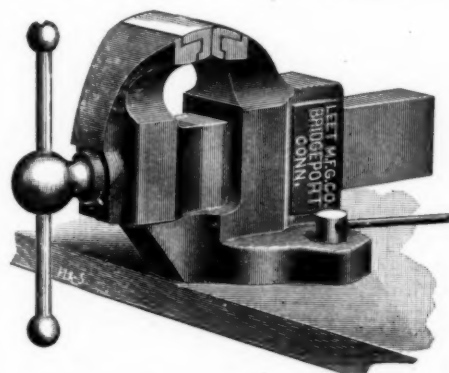
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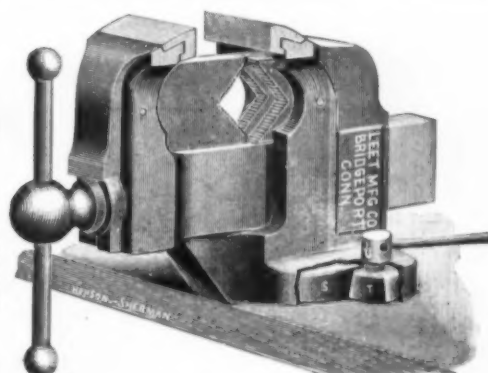


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WITH SWIVEL BOTTOM.

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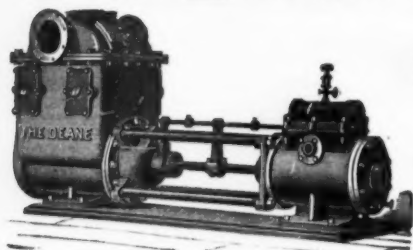


Uses the "A"
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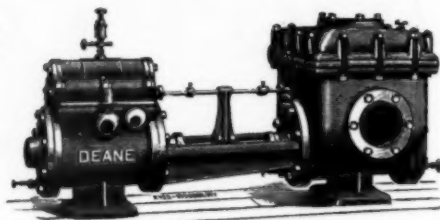
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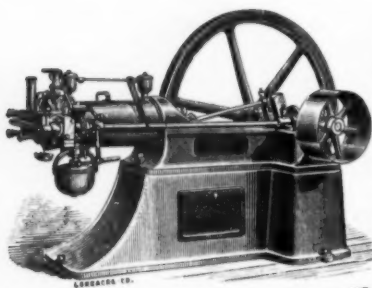
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SCHLEICHER, SCHUMM & CO., N. E. cor. 33d and Walnut Sts., Philadelphia.

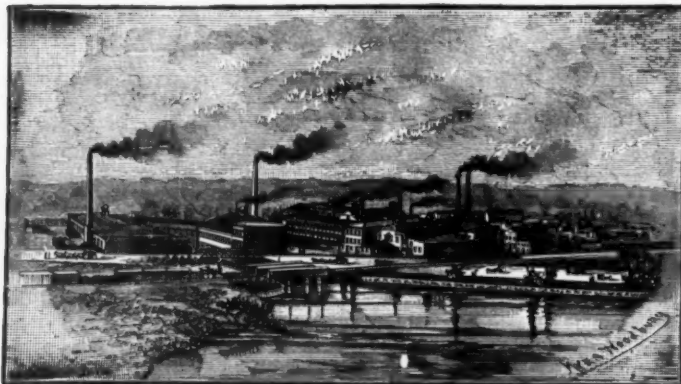
GEORGE DRAPER & SONS, Manufacturers of COTTON MACHINERY HOPEDALE, MASS.

Telegraph Address and Railroad
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Do not fail to visit the World's Exposition at New Orleans, La., and see in operation OUR NEW and IMPROVED MACHINERY for ROVING, SPINNING, SPOOLING, WARPING and TWISTING.

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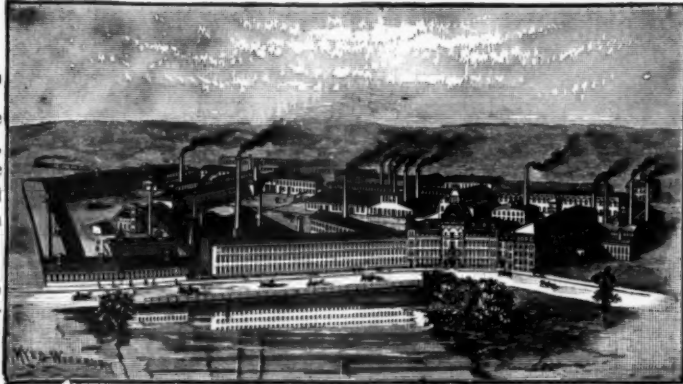
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BALTIMORE, MAY 9, 1885.

Technical Education.

The importance of technical schools has not yet been fully appreciated by the people of the South. The rapid development of the industrial interests of this section has so absorbed public attention that the necessity for giving the rising generation the best advantages of technical education has scarcely been realized except by a few individuals here and there. It ought to be one of the most gratifying features of the South's progress in manufactures, that it opens up a source of profitable employment to the thousands of young men who have heretofore been almost necessarily forced either to adopt some profession already overcrowded or else emigrate to some place where there is a wider diversity of occupation open to all who are willing to labor. For the young men who did not desire to study law or medicine, and had not the capital to engage in merchandising, the South has been sadly lacking in opportunities for employment that gave promise of success. With the decided change in the industrial interests of the Southern States, the building of manufacturing enterprises of all kinds, the opening of mines and the construction of railroads, the South is rapidly becoming one of the most inviting places in the world for those who have had the benefit of a good technical training. It is essentially important to the permanent success and growth of manufactures in the South that the Southern people themselves should be thoroughly fitted to improve their opportunities in this line and that a strong manufacturing sentiment be inculcated in the rising generation. This can best be done by thorough technical schools,

and whatever may be the necessities for economizing in the expenditure of money by the Southern States, there should be no false economy in refusing to establish and support technical schools, well equipped and taught by the most competent teachers to be secured.

In a report upon technical education in England, by Consul Shaw, of Manchester, it is said:

An increasing activity is being manifested in behalf of technical education in this country, and great reliance is felt in the work this new system will be able to accomplish in the near future. The aim is to combine skill in manipulating raw materials with a thorough scientific knowledge of chemistry and of all raw products from which manufactures are here turned out.

Germany has taken the lead in calling to the aid of her manufacturers a rare knowledge of chemistry, and this has enabled them to turn out the best products at the least cost, aided by the discoveries of their chemical experts in compounding colors and securing advantageous results at small cost. New discoveries made from time to time in coloring mixtures have afforded special advantages to their textile industries, and the range and beauty of their colors are the admiration and envy of the world.

A thorough scientific knowledge of chemistry is an almost invaluable necessity in all large textile manufacturing establishments. The day has gone by when a mere routine knowledge of delicate and difficult chemical combinations can safely be trusted, in competition with the best technical development possible under the new system. A manufacturer from a New England State only recently informed me that he became convinced a few years ago that his bill for indigo was far too large. The result of his inquiries led him to send abroad for a skilled dyer, who had been carefully educated in the best technical and chemical schools in Germany and England; "and," said he, "in the first year he reduced my indigo coloring account from \$80,000 to \$30,000." This striking case illustrates very forcibly the improved methods of dyeing over the old system. It was not because his long time dyer was not as efficient as one could be with his limited and imperfect knowledge of chemistry, but for the reason that this new man was master of the latest methods in his art. One hoped-for reform in this technical system of education is that of educating young men in such a way as to make them feel an interest in combining manual labor with scientific instruction. It is of great importance to develop a sentiment among students in favor of honest toil, combined with the desire for improvement in all things entering into the manufactures in which special interest is taken. Wrong ideas about the dignity of labor work great evil at present. Young men seek to find out a way to earn a livelihood without entering the workshop or the factory, in the too-often-mistaken belief that the store, the counting house, or some profession offer more dignified occupations. The result is an over-crowded and poorly-paid class, and no end of sad failures, owing to temptations bred of extravagance and false views of life and its true aims. Technical education presents a wide and rare field for practical instruction of a most useful kind, and in the highest sense educates students to be of commanding usefulness in all the manufacturing centers.

In England, evening schools for the artisans and working classes are said to be a great boon, and their results have been remarkably satisfactory.

THE Crozer Furnace at Roanoke, Va., which has lately been undergoing repairs, will go into blast sometime during May.

One Way to Advertise a Town.

Some days ago we received a letter from a manufacturing firm in Gadsden, Alabama, on the back of which was printed a concise statement of the advantages of that town. This is a way of advertising that has been used quite effectively in many towns, but it has not been very generally adopted in the South. Its cost is so light that it commends itself to Southern business men who desire to constantly impress the advantages of their section upon the public. In the case of Gadsden, already mentioned, there was a short description of its location, climate and health, and a few particulars as to the manufacturing interests of the town. If the merchants, manufacturers and, in fact, all the business men of any town, would decide to prepare a short sketch of their town, setting forth its attractions and advantages, and have it neatly printed on the back of their letter paper, they would in this way advertise their town by every letter they sent out, and as the cost would be so triflingly small as to be of no importance, it is well worth adoption. Of course very great results could not be expected from this manner of advertising, but assuredly they would be far in excess of the small cost.

THE *Chronicle and Constitutionalist*, Augusta, Ga., has celebrated its centennial by issuing a 24-page paper, which, contrary to the usual way in which big issues are gotten up, is not over-crowded with advertisements, to the exclusion of reading matter. It is a magnificent issue, filled with facts and figures of great value. In fact, the history of Georgia for 100 years is epitomized in the *Chronicle's* centennial. The development and the resources of Georgia are most admirably set forth, and we have no doubt that the 60,000 copies issued will meet with ready sale. The price of single copies is 15 cents.

A DISPATCH from Anniston, Alabama, to the Atlanta Constitution, says:

"The Woodstock Iron Company's furnace No. 4, at Ironton, was blown in a few days since and is now turning out a very superior quality of car-wheel iron. Furnace No. 2, at Anniston, has just blown in on new sandstone hearth, and puts out forty tons per day of the finest iron for car wheels ever made in this district. The building of an extension of the East & West Railroad, of Georgia, to this place is now assured, giving Anniston connection with Atlanta by three independent routes. The work of constructing foundations for two coke furnaces will be begun at once and the work of construction vigorously pushed. When these furnaces are completed the Anniston iron district will be the largest producer south of the Ohio."

ADVERTISERS wishing to reach the manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the BALTIMORE MANUFACTURERS' RECORD. We are always prepared to furnish proof of our claims as to circulation.

A Fine Virginia Furnace.

In the last issue of the *Virginias*, a statement of the output of iron at the Low Moor furnace, Low Moor, Va., is given, showing that from January 1 to April 25, 1885, 115 days, the production was 14,502 tons. The detailed report of the operations of the furnace for that time is as follows:

Quantity of limonite ore used.....	33,654 tons
Quantity of New River coke used.....	17,795 "
Quantity of No. VI limestone used.....	16,638 "
Quantity of raw material used.....	68,087 "
Tons of No. 1 pig iron made.....	5,948
Tons of No. 2 pig iron made.....	5,195
Tons of "mill" pig iron made.....	2,344
Tons of "silvery" pig iron made.....	742
Tons of "mottled" pig iron made.....	279
Tons of pig iron made.....	14,502

This output is an average for the 115 days of 126 tons a day; the stoppages for one thing and another amounted to about a day and a quarter; allowing for the beginning of the blast and for this loss the quantity given represents the actual output of about 111 days, or an average of about 131 tons a day.

This record is rather remarkable for the showing it makes of the character of the iron made at Low Moor during this period. It will be seen that about 41 per cent. of the entire output was No. 1 pig, the highest grade; 36 per cent. No. 2 pig, the second highest grade, and 16 per cent. "mill" iron, or the third highest grade. In other words 93 per cent. of the entire output of the furnace was of the three higher grades of pig iron and 77 per cent. of it was of the two higher grades; a record that can safely challenge a comparison with the very best furnace results of the country.

The record of the week ending April 25 shows a make of 933 tons of pig iron, of which 654 was No. 1, and 266 No. 2, leaving but 13 which was "mill;" the average per day was 133 tons.

In editorially commenting on these facts the *Virginias* says:

"After careful enquiry we are perfectly satisfied that iron is now made as cheaply at Low Moor as at any point in the South or in any portion of this country. Its operations have settled the question that Central Virginia can produce more and better iron for the same money than any other region in the Union, and then when such iron is made it can cheaply reach several good markets."

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

Notes * From * Dixie.

BY CHAS. H. WELLS

The railroad superintendents, who recently held their convention in Richmond, were treated to a fast ride over the Chesapeake & Ohio Railroad. A special train took them from Richmond to Old Point Comfort in two hours—the quickest trip that has ever been made over that section of the "C. & O." The officials dined at the Hygeia hotel,—with mine host Phoebus,—and got back to Richmond, 83 miles, in time to lunch there at five o'clock. This shows that the Chesapeake & Ohio is what it has long claimed to be—the leading railroad of Virginia.

Of the many enterprises illustrating the progressive spirit of North Carolina, and promising great results, there is no one which attracts more attention than the Cape Fear & Yadkin Valley Railway, whose construction is being so vigorously pushed by the energetic president, Mr. Julius A. Gray, of Greensboro, N. C. Whether it is because the road is essentially a North Carolina road, running diagonally across the State, bringing into close relation sections far distant and totally different, and effecting an interchange of every product of North Carolina soil and waters; or whether it is because the people are rejoiced to see the approaching realization of an old idea and the success of an enterprise that, for thirty years, has been struggling with backsets and perverse fate; or whether it is because it is the only road in North Carolina which is owned, officered and controlled by individual North Carolinians, built by North Carolina money, and operated for the development solely of North Carolina towns; whether it is because of either or all of these facts, it is noticeably true that the people of the State are particularly interested in the building of this great work of internal improvement.

The Chatham (N. C.) *Record* is authority for the statement that the only forest of white pines in North Carolina, east of the Blue Ridge Mountains, is in Chatham county, on the southern bank of Rocky river, about half a mile above its junction with Deep river. These trees, some of them two feet in diameter, grow on a high hill that rises almost perpendicularly from the river, and extend nearly half a mile up the river. The hill is very rocky with but little soil on it.

The Tarboro (N. C.) *Southerner* comes to the fore with the following remarkable yarn: "The longest cotton row in the county and probably in the world is on the Shiloh farm of Messrs. Statton & Jeffries. The row begins in the centre of an hundred acre field and goes round and round, spiral-like, until the entire field is gone over. To side up the cotton on one side requires only five and a half days." This is almost as bad as the tales Bill Nye has been getting off about the big farms out near Laramie.

W. Duke, Sons & Co., of Durham, have gotten out some new advertising matter in the shape of elegant phototypes of leading actresses, mounted on heavy cards. The set will be mailed to any address on receipt of twenty-five cents. Each card, of course, contains an advertisement of the famous Duke Cigarettes. At present the factories are turning out 900,000 cigarettes a day! The North Carolina tobacco is used, and the warehouses contain 105,000 square feet of floor room, which gives some idea of the amount of tobacco used.

A Raleigh correspondent of one of the leading New York daily papers, says that

before the war their was, in North Carolina, a corporation known as the Roanoke Navigation Company. This company cut a canal 10 miles in length from Gaston to Weldon, and diverted a portion of the Roanoke river through the canal. Mills were built along the canal and at Weldon, and there were splendid prospects for the company, but the war destroyed these, and the corporation was dissolved by the courts two years ago. The franchise and property were sold at public auction, and were bought by several moneyed men, among them whom are J. Donald Cameron, of Philadelphia, and William Mahone, of Virginia. The legislature then chartered the Roanoke Navigation and Water Power Company, and the company has been organized by electing Senators Cameron and Ma'one, S. P. and R. P. Arrington, of Petersburg, Va., and Thomas W. Mason, of N. C., directors. There is a tremendous fall from Gaston to Weldon, and with a slight expense a dam 6 feet high at Gaston will throw the entire volume of the Roanoke river into the canal. Mills and factories can be erected every hundred yards along the bank of the canal. An expert will soon survey and locate suitable sites for mills and factories. Within the next twelve months the canal will be thoroughly repaired, and then inducements will be offered to secure the erection of machinery from Gaston to Weldon.

Mr. R. K. Bryan, of Hickory, N. C., says there is considerable interest manifested by the business men of Wilmington over the construction of the projected "Wilmington, Onslow & East Carolina Railroad," which was chartered at the last session of the State Legislature. One of the termini of this new thoroughfare will be Wilmington, the other may be any point in North Carolina east of the Wilmington & Weldon Railroad. It is understood, however, that the road is to run from Wilmington to Jacksonville, Onslow county, if it goes no farther. The charter is a very favorable one, as it allows the company the privilege of building branches, and gives one hundred and fifty convicts to build the road, provided they are not otherwise assigned. These convicts are to be paid for at the rate of eight dollars per month. If the convicts can be obtained, the unskilled portion of the work can be pushed expeditiously and cheaply. The road will be over a very level route, and through an undeveloped country of great and varied resources.

Rowan county, North Carolina, is one of the flourishing counties of that State. A friend sends the following statistics: Rowan county has thirteen townships; twenty-three post-offices; sixty-three churches; forty-one water mills for grinding corn, wheat, &c.; fifty-two gold and copper bearing mines; seventy-five schools (public and private); and about three hundred and fifty miles of public roads. Besides these there are some eight or more grist mills; about forty water and steam saw mills; a number of steam cotton gins and cane mills. Quarries of the best light grey granite and syenite to be found in the State. The soil of the county produces as fine corn, wheat, rye, oats, cotton, golden tobacco, hay grasses, clover, &c., as can be produced in the State. Nearly two-thirds of the county is in forests—pine, oak and hickory predominating. No county is better watered, and for many years Rowan was noted as a hay-producing county. Of late the farmers have very foolishly taken to cotton-growing, and the result has been far from encouraging, debts having accumulated with amazing rapidity.

ADVERTISERS wishing to reach the manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the BALTIMORE MANUFACTURERS' RECORD. We are always prepared to furnish proof of our claims as to circulation.

The Exposition.

[Special correspondence BALTIMORE MANUFACTURERS' RECORD.]

NEW ORLEANS, LA., April 30, 1885.

Hon. John Gilmer Speed, Commissioner General of the American Exhibition, to be held in London in 1886, has been in New Orleans for some weeks working up an interest in the great Exposition he represents. He has succeeded most admirably, having met with the most flattering reception by the United States Commissioners from the various States, and having been greatly encouraged by the promises of the largest exhibitors in the main building.

About the middle of the present month Mr. Speed, by request, appeared before the Board of Commissioners and submitted an elaborate report on the organization, condition and prospects of the American Exhibition, which proved so satisfactory that it was ordered to be printed and a committee appointed to consider Mr. Speed's address. This committee made a thorough investigation into the standing of the Exhibition, and reported that "to the United States, the American Exhibition is of so much vaster importance than any other ever held or projected, that it should be the bounden duty of every citizen of our country to contribute in every way possible to the end that the Exhibition of next year may be a thorough and faithful Exposition of the arts, manufactures, products and resources of every State and Territory of the Union." The report further says: "This is our first opportunity to show England, France and Germany, and the European nations, the resources of our lands and the results of our wonderful inventive genius. We can show them that the skill of our people has for years compensated for the dearth of material by the cheapness of construction; that mechanical development is a part of the character of the nation, and we may be sure that a country that has produced the grain elevator, the oil pipe pumps, machine-made matches, high-speed printing presses, and other great inventions, will develop more wonderful creative powers under the stimulus of the increased export trade which must necessarily follow the London Exposition." The report recommended the appointment of a committee to frame a suitable address to the President of the United States, both houses of Congress, and the legislatures of the various States, and a few days since this report was submitted. It recommends appropriations by Congress, and by the various States for the purpose of having the resources and products of the country thoroughly advertised and exhibited. The report was unanimously adopted.

Mr. Speed has followed up his good work by beginning a practical organization in every State. Commissioners have been appointed to look after the interests of their States by bringing the matter promptly and properly before their people. They have been selected chiefly from among the commissioners here who are already familiar with this class of work and who are full of enthusiasm on the subject. They are men of influence and prominence at home, and will be able to render efficient service. They realize the importance of the exhibition and the good to follow it, and by the appointment of such men a corps of active and experienced assistants has been secured.

It is said that at all former World's Expositions in Europe, the exhibits from the United States have not only been meagre, but exceedingly poor, and that foreigners have never realized the greatness of our powerful republic, its wonderful natural resources, nor its mechanical ingenuity. The exhibits that it is proposed to take to this Exposition will fully illustrate the fertility of our soil and the genius of our mechanics, and such a display will redound to the benefit of the whole country.

The managers of the Louisville Exposition are making efforts to have the State exhibits here removed to Louisville. They

offer very liberal inducements, and, if the New Orleans Exposition is closed on the 31st of May, it seems probable that many of these exhibits will be transferred to Louisville.

The MANUFACTURERS' RECORD is doing a splendid work for the South in presenting to the public the development of the manufacturing interests of this section. The statistics of various establishments erected and statements of capital invested are recognized as thoroughly reliable by all who have watched the progress of the South for the past few years. The RECORD's figures are more frequently quoted than those of any other journal which treats of the industrial affairs of the Southern States.

The West Gold mine, located in Union county, South Carolina, has been worked to a limited extent for some years by the owners, who are capitalists living in Philadelphia. One of the gentlemen interested in this mine informed your correspondent a few days since that it had always yielded a profit, but that it could be made to pay very handsomely if hydraulic mining could be operated, but that this could not be done, owing to a decision of the Supreme Court of the United States, which makes the owners of mines liable for damages done to lands by the deposit of talings and refuse from the mines. If reasonable terms could be made with the owners of lands that would be injured, the hydraulic mining would be instituted, and the production of the precious metal in South Carolina greatly increased. My informant states that there are some very rich deposits of gold in upper South Carolina that would be developed in the same manner, and that such a system of mining would give a great impetus to the business in that section of the State, as well as in many other places in the South. The proposition to award a grand gold medal to the State having the best collective exhibit, was voted down by the commissioners after many considerations and discussions. It was a very difficult matter to devise any plan for awarding such a premium that would have given satisfaction to all the States. The exhibits of the Northern and Eastern States are composed largely of mechanical inventions and manufactured products, the Western of grain and minerals, and the Southern of a great variety of productions. There is such a dissimilarity between them that no just comparison could be made. It was decided, therefore, that it was best to abandon the idea altogether, and this was accordingly done, so that nothing in the Government Building will be entered for competition.

The various juries of awards have been busily engaged during the past week examining articles in the main building. Some of the reports have been submitted, but only a few of any consequence have been made public. In some of the departments the awards will not be made until the close of the Exposition.

THE NORTH CAROLINA EXHIBIT

is one of the largest and most varied in the Government Building. It contains specimens of all the productions and natural resources of the State. The immense collection of gold, silver, lead, copper and iron ores, and huge lumps of coal, is very attractive and impressive. A visitor in looking over this collection could easily imagine himself either in California, Pennsylvania or Alabama, as the mineral products for which these States are famous are all presented in North Carolina. A beautiful mica pavillion covers a handsome and dazzling collection of precious gems and glittering nuggets of gold. Among the gems is the famous Hiddenite, found only in Alexander county, North Carolina, and is the rarest of precious stones. The agricultural division contains cotton, tobacco and all the cereals. These are displayed in a large and beautiful pagoda, and in other striking ways. The manufactured products consist of cotton and woolen yarns and goods, naval stores, tobacco, &c. Over 100 varieties of native timbers

are exhibited. These embrace all of the most desirable kinds used for almost every purpose. The fishery exhibit is complete and extensive. The North Carolina representatives claim that their State exhibits a greater variety of products than any other at the Exposition.

Mr. R. M. Wilson, the commissioner, and his assistants, Mr. Bruner, Mr. Stamp and Mr. Clark, have worked untiringly for their State, and it is gratifying to know that they are already beginning to realize some of the fruits of their labors. Their exhibit, which is exceedingly creditable, has attracted much attention, and these gentlemen reasonably expect a large investment of money in manufactures and in mining, and the influx of a fine class of immigrants within a short time. L. A. R.

Oldham Cotton Trade.

The manufacturers in Oldham, Eng., are considering the advisability of lowering the scale of wages paid to their operatives; and to this end a conference of representative workmen, and representative employers, has been proposed by the manufacturers' association. The secretary of the employers has already communicated with the secretary of the Spinners' Association, asking for such a meeting to discuss the question as to whether reducing wages would enable them to wade more easily through the present unparalleled depression. Whatever may be the result of this action, it speaks well for the intelligence and fairness of the manufacturers in inviting the representatives of their work-people into their councils. In the district from the last completed returns, we learn that there were over 11,000,000 spindles in operation, nearly as many as in the whole United States. Its growth has been very rapid, and labor has been the magic wand which has raised it to its present pinnacle of greatness as a manufacturing centre; and as such, the manufacturers recognize and respect it by soliciting its co-operation and advice as to the best means to adopt to extricate themselves from the mire of adversity in which they are struggling. The example is well worthy of imitation by the manufacturers of the United States, in face of the keen competition at present existing between the nations of the world engaged in the manufacture of cotton. "It must be evident to thinking, intelligent men, that those must prosper best where the most kindly feeling exists between employers and employed. Capital and labor working in harmony together can materially assist each other; but when passion and hatred take the place of reason and kindness, the amount of injury possible to be inflicted is beyond the calculations of those not possessing a practical understanding of the cotton trade. The Oldham manufacturers, in attempting to arrive at some amicable and satisfactory arrangements with their help by inviting them to a conciliatory meeting like that proposed, are deserving of all praise. Whenever conciliation or arbitration boards have been proposed by the help of the mills of New England, for the settlement of labor disputes, they have been invariably ignored, and told that arbitration was not in consonance with the modes of doing business here; and that they (the manufacturers) do not calculate to establish any such system. Yet we saw the government of this country submit to the notice of the world the wisdom of arbitration, by settling with Great Britain the claims arising out of the depredations committed by the Alabama upon our commerce by this method. A strike has never been known to occur in the manufacturing cities and towns of New England, where conferences have been held previously by representative workmen and employers; it is only when labor's voice has been ignored, and denied the right in having a word in the fixing of its wages, that large strikes have been inaugurated. Is it not a blot upon our boasted civilization, upon the escutcheon of this old puritan State of Massachusetts in particular, that no better judge has yet been selected for the settlement of disputes than that of brute force. Oldham's methods should not be lost sight of.—*Wad's Fibre and Fabric.*

Edson's Speed Recording Apparatus,

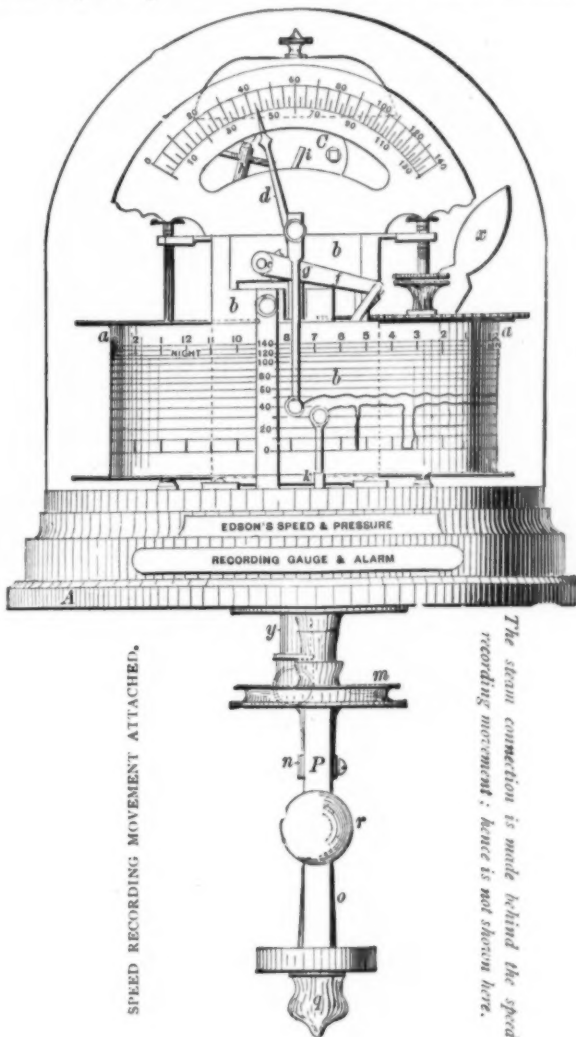
in combination with the Time and Pressure Recording and Alarm Gauge, has been recently perfected and patented. Reference is made to its application to dynamo machines used in the generation of electricity for illuminating purposes, which require for their successful operation the maintenance of a uniform and often an exceedingly high rate of speed. The records which these instruments afford are conclusive evidence of the facts occurring as regards time and rate of speed, and are vouchers indisputable and otherwise unattainable. We quote from the Electrical World as follows:

"The electrical engineer cannot confine his knowledge to electrical tests and measurements alone. There are other points accessory to these which often prove of greater importance. At the present time we derive our electrical energy almost altogether from coal in steam engines, and just as long as we are obliged to resort to this process it will be necessary for him to familiarize himself with the details and secrets of steam engineering.

fireman. We will also concede that both ought to be watched as diligently as the rest of the installation.

"We feel certain that all engaged in electric lighting will be glad to know that they can be relieved of this responsibility and the trouble it involves by the use of an ingenious appliance invented by Mr. M. B. Edson, of New York, which assumes the whole task of "watching" over the boiler and the fireman, or even the engine and engineer, and does its work neatly as well as accurately by means of purely automatic devices.

"The Edson apparatus is a gauge which indicates pressures of any kind, either steam, air or water, and which records every fluctuation or variation, and gives an alarm whenever these pass beyond prescribed limits. The apparatus may also be modified so as to become an indicator of speed, which shows at once the speed of an engine or a dynamo, and every fluctuation thereof with accuracy, while it records them. In some cases the speed or motion of machinery, (or of a train of cars,) is desired to be indicated by hand and dial, and a record made of the same for certain purposes, irrespective of the



"In electric lighting steady and reliable motive power is a factor of the highest importance. Every electrical detail in an installation may have been carried out with absolute precision, and yet, if the motive power is inadequate or unsteady, failure will be inevitable. This argues very clearly that the engineer must watch over the production of the motive power, and be as conversant with everything occurring in that department as he is with the production and utilization of his electrical current.

"In using steam engines, the great fundamental requirement for the production of steady power is a continuous uniform steam pressure. A bad engine may work tolerably well with a constant uniform head of steam, but even the best engine will give bad results with a steam pressure vacillating at every moment. The chart records show every variation.

"If we go back a step we will find that in order to get steady steam we must have a good boiler, and above all a good, reliable

steam pressure, for which purpose a separate or special instrument is made, and the "chart" is adapted to such specific use.

Inspectors of steamboat and stationary boilers should no longer ignore the indisputable benefit which the steam "charts" would afford them when inspecting boilers for showing the past strain to which they have been subjected, and whether the engineer or firemen are careful to do their duties. Coronors and other jurors may, sometime in the future, attest that the neglect to provide records of pressure carried is nothing short of criminal conduct, and, when lives are lost in consequence, heavy penalties should be awarded. As an index of the appreciation of these safeguards, we mention that they are on the steamers "City of Rome," "Berlin," White Star, Hamburg and French lines. The "Bellerophon," and other English, Russian and Austrian war steamers, Lorillard's yacht, "Radha," the Bay Line of steamers, Baltimore, etc. The New York Herald and other metropolitan journals have

for years made use of them. The means of prevention will be found for sale by the Edson Recording & Alarm Gauge Co., 91 Liberty street, New York, and by the American Steam Gauge Co., Boston, Mass.

One Way to Develop the South.

During the past week a number of Atlantians have assisted at two important and significant events—the opening of the Kimball house in Atlanta and the Anniston Inn in Anniston.

For years the hotels of the South have been her reproach. Needing more than any other section, the liesurely inspection of men of capital, who want the best accommodation, and are willing to pay for it, she has offered the least inducements in that direction. Her hotels, instead of tempting visitors, have repelled them. Those who came per force, were disgusted with what they had to eat and drink and the inn in which they found no comfort, and hurried away as soon as possible.

Wherever really good hotels have been placed in the South, immediate and permanent growth has followed. Florida owes her remarkable progress to nothing so much as to the fact that her hotels have been tolerable. Northern people, with reasons for coming South to live and capital to invest here, were attracted to Florida by the fine accommodation at the hotels, and finding it agreeable to linger there and cast about, have built towns and cities and improved waste places. Thomasville, in our own State, owes her undisputed prominence among the towns of southwest Georgia more to her excellent hotels than to any other influence. The Mitchell house unquestionably gave Thomasville its boom, and with the Piney Woods hotel is fast concentrating in that city more guests than it can handle, and that naturally ought to be distributed among the surrounding towns. A first-class hotel is the best possible attraction and advertisement any city or section can have.

The opening of two such hotels as the Kimball and the Anniston Inn is, therefore, an event of deep and special importance. In all the South they can be compared to nothing except to each other. There is not a hotel in America to surpass either. As for the Anniston Inn, it may be said in sober truth that there is not in the world a city of even approximate size, with a hotel to equal it. In its beauty, its elegance, its finish and its management it is simply perfect.

The visitor to Anniston is amazed at the richness and the excellence of the inn, and asks how a city of six or seven thousand people can support such an establishment. The hotel will come nearer supporting the city. We predict that it will be filled, summer and winter, with people of wealth and taste, who want a retreat to which they can go for rest or recreation. These people, once in Anniston, must be struck with the magical growth of that city, with its unequalled advantages as a manufacturing center, its beautiful scenery, its delightful climate, and led to make investments there.

No man of intelligence can remain in Anniston a week without becoming profoundly impressed with its future and with the opportunity offered for fine investment there. The guests attracted and held by the inn will become the builders of the great city that in the next decade must assuredly stand where Anniston now stands.

Good hotels are what the South needs. Inns scattered here and there, that assure the comfort and ease of their guests—that will attract visitors and please them. The building of two such hotels, as those just opened at Atlanta and Anniston is a hopeful sign. These two hostleries, far in advance of anything before attempted in the South, will stand as models for others to come. They will build up the cities in which they are located and benefit the whole section.—*Atlanta Constitution.*

[The suggestion of the Constitution as to the immense value of good hotels is well worth consideration by Southern people. Anniston has led the way, and, we think, the Constitution is right in predicting that the Anniston Inn will be of immense value to that town.]

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

ALABAMA.

It is reported that a party of experienced iron workers of Pennsylvania will be in Anniston, Ala., in a few days with the view of establishing rolling mills to manufacture all kinds of small iron. Jas. Noble, Anniston, can give particulars.

An effort is being made in Selma, Ala., to organize an electric light company.

D. H. Caswell, Nashville, Tenn., it is reported, contemplates building a cotton-seed oil mill at Mobile, Ala.

J. A. Montgomery and Wright & Co., of Birmingham, Ala., have the contract for 50 miles, and J. W. Harden, of Marven, N. C., has the contract for 20 miles, of the Fayetteville branch, Wilmington & Weldon Railroad, previously reported as to be built.

J. D. Hunter, Oxana, Ala., has contracted to mine a large amount of iron ore, and will commence work at once.

James Noble, Anniston, Ala., previously reported as intending to establish boiler works, has received his machinery.

D. B. Sapp, Hanceville, Ala., contemplates building a flour mill.

ARKANSAS.

James Messick, Paris, Ark., will build a kiln and manufacture brick.

A paper factory is talked of at Malvern, Ark.

Vedder's Planing Mill, Pine Bluff, Ark., is nearly completed.

It is reported that work will very shortly commence at Fayetteville, Ark., upon the building of the Pacific & Great Eastern Railroad, previously reported.

FLORIDA.

B. F. Howland contemplates building an ice factory in Apalachicola, Fla.

The Ocala Planing Mill Co. has been organized in Ocala, Fla., to build a planing mill; machinery has been ordered.

It is rumored that a new street railroad will be built in Jacksonville, Fla.

R. N. Marks, M. R. Marks and others, Sanford, Fla., have organized the Wekiva, Maitland & Eastern Railroad Co., to build a road from Wekiva river or near there to Lake Jessup.

The new saw mill at Seville, Fla., has been finished.

The Sante Fe & St. John's River Railroad Co., G. M. Whetstone, president, at a late meeting held at Lake Butler, Fla., decided to survey and prepare to build the road at once.

The Winter Park Company, Winter Park, Fla., L. A. Chase, secretary, capital stock \$300,000, will build a 100-room hotel. A large college is to be built at same place. L. A. Chase can give particulars.

The East Florida Land & Produce Co. has organized a 40 mile railroad from the Matanzas river to Windermere, Fla.

Kissimmee, Fla., is talking about water works.

A 100 room hotel is to be built at Astor, Fla.

GEORGIA.

Mr. Miller, of Ohio, is in Rome, Ga., prospecting with a view of establishing a rolling mill.

Mr. McElroy, of Iowa, will probably locate in Calhoun, Ga., or at some other point in the South, and build a blind, door and sash factory.

The building of a \$40,000 brick hotel is being agitated at Covington, Ga.

Oglethorpe county, Ga., will build a \$25,000 court house.

W. C. & T. Atherton, Jasper, Ga., are building a cotton mill to be run by water power. The mill is nearly ready for machinery.

J. A. Atherton, previously reported as building a cotton mill at Too Nigh, Ga., has his mill in operation, but expects shortly to put in more machinery.

L. A. Chapman, previously reported as intending to remove from Milledgeville to Sandersville, Ga., to establish a brick yard, has reached the latter place.

The Sibley Mills, W. C. Sibley, president, Augusta, Ga., which have lately put in a large amount of new machinery, will soon purchase more machinery.

It is reported that a railroad will be built very shortly from Covington, Ga., to Macon, and thence possibly to Cedar Keys, Fla.

KENTUCKY.

Wm. Rathman, flour miller, Uniontown, Ky., has ordered roller mill machinery.

Riggs & Musselman, Cynthia, Ky., have contracted to change their flour mill to the roller system.

Moore & Smith, Zion, Ky., have contracted for a 50 barrel roller flour mill.

O. S. Bryant, Scottsville, Ky., will build a flour mill; has ordered machinery.

The Louisville Asphalt Varnish Co., Louisville, Ky., will increase their capital stock from \$17,000 to \$50,000 for the purpose of doubling the capacity of their factory.

The Louisville Glass Works Co. has been incorporated in Louisville, Ky., by R. W. Lewis, Charles Doyle, Thomas Flynn, Herman Rolf and J. Markelstanger, for the manufacture of glass; capital stock \$25,000.

A saw mill is being built at Williamsburg, Ky.; Green & Richardson can probably give particulars.

The Clark Gold & Silver Amalgamator Co., capital stock \$100,000, has been incorporated in Louisville, Ky.

The Masons, of Newport, Ky., will build a hall 41 by 100 feet.

A \$10,000 Methodist church is to be built in Winchester, Ky.

G. H. Dimmick, G. H. Strubbe, C. W. Stone and C. R. Brown have organized in Covington, Ky., the New South Oil & Gas Co., with \$200,000 capital stock, to engage in mining, manufacturing, sale, &c., of natural gas, oil, &c.

LOUISIANA.

Maxwell & Putnam, New Orleans, La., will put in some new machinery.

MARYLAND.

John Beard has received contract to furnish the machinery for the grain elevator to be built by N. I. Gorsuch & Son, Westminster, Md., previously reported.

The National Electric Bath Company has been incorporated in Washington, D. C., with W. W. Karshner, Charles M. Nye and Charles D. Hudson as directors. Capital \$100,000.

Flannery Bros., of Washington, D. C., have received the contract for building a marble terrace at the capitol building, in that city, to cost \$87,000.

The United States Electric Light & Power Company has been incorporated in Baltimore, Md., by James P. Clark, Augustus G. Davis, Charles F. Dieterich, George P. Frick, James L. McLane, W. Lorman Roberts and Arthur B. Proal, to manufacture electricity for illuminating purposes, power, &c. Capital stock \$500,000.

There is talk of a \$30,000 electric light company in Salisbury, Md.

The contract for furnishing cast-iron door and window frames for addition to government building at Washington, D. C., has been awarded to W. H. Jackson & Co., of New York, for \$70,633.

MISSISSIPPI.

Joseph Podesta, Vicksburg, Miss., will rebuild his warehouses lately burned; others will also rebuild.

The Aberdeen Fertilizer, Oil & Manufacturing Co., of Aberdeen, Miss., the incorporation of which was previously noticed, has a capital stock of \$50,000. Work on their cotton seed oil mill has been commenced.

The Aberdeen Oil Mills, Aberdeen, Miss., previously reported as organized by James M. Boyd, Charles A. McKinnon and Robert Boyd to build a cotton seed oil mill, has a capital stock of \$25,000. The company expect to build shortly.

Capt. Hunter, of Memphis, Tenn., has purchased five thousand acres of land near Vicksburg, Miss., and will erect a large saw mill.

NORTH CAROLINA.

The Cape Fear & Yadkin Valley R. R. (Julius A. Gray, Greensboro, N. C., president) intend to enlarge their machine shops at Fayetteville, N. C., and manufacture their own cars.

J. Z. Falls, Kitchen's Cross Roads, (P. O., Cleveland Mills,) N. C., has commenced the erection of a flour mill.

A chewing-tobacco factory and a cigar factory are being erected in Shelby, N. C.

The Long Creek Gold Mine, Dallas, N. C., has been sold to Northern capitalists, who will work it.

Warlick, Ivester & Co., Cleveland Mills, N. C., are building a saw mill and cotton gin.

Hester & Walton, Glen Alpine, N. C., will erect a saw, grist and planing mill.

Hansen & Smith, Wilmington, N. C., have put up extensive machinery to creosote timber.

It is expected that Vernon & Shelton, and J. A. Porter, Greensboro, N. C., will establish tobacco factories.

Thos. J. Davis, Webster, N. C., is working an important mica mine.

A new brick yard has been started at Kernersville, N. C.

SOUTH CAROLINA.

J. J. Cahill has established extensive phosphate works on Wando river, near Cainho, S. C.

The Oliver Oil Co. has been chartered in Charlotte, N. C., by Geo. H., William, Frederick and Henry Oliver to manufacture cotton-seed oil and fertilizers; capital stock \$100,000. These gentlemen are the owners of the Charlotte (N. C.) Oil Mills, and, as lately reported, will build a large cotton-seed oil mill in Columbia, S. C.

Wheeler & Mosely, of Prosperity, S. C., have commenced the manufacture of brick, and W. S. Birge, same place, will shortly do so.

TENNESSEE.

The Phoenix Marble Co. has been incorporated at Knoxville, Tenn., by S. B. Luttrell, R. R. Swepson, and others.

G. W. Parker, Newbern, Tenn., will build a 75 barrel flour mill, for which machinery has been ordered.

Haynes, Henson & Wright, Knoxville, Tenn., will erect a large business house.

Andy Harris & Co., near Black Oak Station, Tenn., have purchased machinery for a saw mill.

Collins Arnold, Troy, N. Y., is in Pulaski, Tenn., looking for a location for a cotton factory in Middle Tennessee.

H. F. Welb & B. F. McGrew, Pulaski, Tenn., are preparing to erect wool-carding machinery.

K. P. Jones, Chattanooga, Tenn., is erecting a factory 60x30 feet to increase his facilities for the manufacture of baking powder.

Briggs Bros., of Hopkinsville, Ky., have built a large saw mill and stave factory near McEwen, Tenn.

Duty & Co., of Cincinnati, Ohio, contemplate locating a pork packing establishment in Chattanooga, Tenn.

Another new gas company is being organized in Knoxville, Tenn., with Samuel McKinney, president; Thos. A. R. Nelson, attorney, and Andrew White, chairman board of directors, to build gas works. Capital stock is to be \$300,000.

Duncombe, Buckwell & Co., Knoxville, Tenn., have purchased the American Button Factory, of Maryville, which will be removed to the former place where a new factory is now being built.

Wm. Rose, Chattanooga, Tenn., previously reported as intending to build a cooperage factory, has secured a site and will put up his building at once.

The Grand Union Depot & Hotel Co. has been organized in Nashville, Tenn., capital stock \$250,000, by E. B. Stahlman and other railroad officers, to build a depot and hotel.

The American Button Factory Company, Maryville, Tenn., having sold their button works, expect to build a roller flour mill.

W. S. Robinson & Co., Chattanooga, Tenn., will establish a fruit-canning factory.

The Jeffersonville, Madison & Indianapolis Railroad Co. (E. W. McKenna, Louisville, Ky., supt.,) are negotiating to remove their machine shops to Louisville, and erect new works at an estimated cost of about \$50,000.

Lanier & Co., millers, of Nashville, Tenn., have purchased a site in Memphis, Tenn., on which they will build a \$75,000 flour mill and elevator.

TEXAS.

A \$50,000 cotton compress is to be built at Tyler, Texas, reported, by W. D. Scofield and others, of Shreveport, La. Efforts are also being made to organize a cotton factory company and a flour mill company.

A cremation society is being organized in San Antonio, Texas.

Ground has been purchased in Cleburne, Texas, for a flour mill to be built by Mr. Anderson.

The Queen City Lumber Co. has been chartered in Cass Co., Texas; capital stock \$35,000.

E. Van Winkle & Co., of Atlanta, Ga., reported last week as intending to build branch iron works in Dallas, Texas, have purchased ground, and will at once erect buildings for manufacturing cotton gins, presses and saw mill machinery. It is stated that large iron works will also be added for the manufacture of cotton seed oil mill machinery, steam engines, &c. Capital reported at \$100,000.

VIRGINIA.

J. D. Ray has purchased the Excelsior Flour Mill in Fredericksburg, Va., for \$4,525.

The Virginia Midland Railroad is receiving lumber for the depot previously reported to be built at Charlottesville, Va.

Points & Herring, Staunton, Va., have just established a soap factory.

Harrisonburg, Va., has decided by vote to build water-works to cost about \$25,000.

The flour mill reported as to be built at Bangs, Va., will be put up by a new company organized as the Montgomery Roller Mills. The cost is to be about \$20,000.

WEST VIRGINIA.

A certificate of incorporation has been issued to "The Laughlin and Junction Steel Company," the principal business office of which is located in Wheeling, though the privilege is reserved of manufacturing either in West Virginia or Ohio, or both. The capital stock is limited to \$500,000. The Company proposes not only to manufacture steel, but also to sell and handle it. It is proposed to have the Laughlin Iron Company and the Junction Iron Company subscribe to the capital stock of this corporation, the principal object of which is to erect a steel plant to furnish steel for these two companies.

Davis Bros., of Piedmont, W. Va., will shortly develop a new coal property in Tucker county, near Elk Garden, W. Va.

Miller & Co., Hinton, W. Va., whose saw mill was burned last week, (loss \$4,000,) will rebuild at once, and have ordered machinery.

The L. A. Carr Milling Co., previously reported as having bought a mill at Charleston, W. Va., which they would repair, will put in new machinery with capacity of a thousand barrels of flour a week.

The Charleston Iron Fence Co. is being worked up in Charleston W. Va., to manufacture iron fencing.

Hoskheimer Bros. have built a tannery at Wheeling, W. Va.

Thomas Croghan & Son have the contract for building 6 miles of railroad in West Virginia. It will run from the Chesapeake & Ohio Railroad to the Mt. Carbon coal mines, Mt. Carbon, W. Va., lately reported as being opened up.

BURNED.

Saw and grist mill of Wm. T. Lankford, near Liberty, Va.; loss \$1,000 to \$1,500.

Saw mill and gin of R. S. Powell, Brunswick county, Va.; loss about \$4,000.

The grist mill of J. P. Leach, near Ringwood, N. C.

The planing mill of the Traskwood Lumber Co. at Traskwood, Ark.; loss \$2,000.

Saw mill of W. F. Hudson in McMinn county, Tenn.; loss \$1,000.

Fruit canning factory near Baltimore, owned by Henry Bewig, Canton avenue and Burke street, Baltimore; loss \$6,000.

A \$20,000 Flour Mill.

BANGS, VA., May 4, 1885.

The Montgomery Roller Mills is the name of the company that will build a flour mill at this place. It is to be completed by the first of September, 1885.

BANGS.

KNOXVILLE, TENN., May 1, 1885.

Editor Manufacturers' Record:

Articles of incorporation have been filed by the Phoenix Marble Co., with S. B. Suttrell, R. R. Simpson, Chas. Pittman, John P. Beach and Thos. H. Heald, as the incorporators.

H. N. SEXTON, JR.

LOCKWOOD, GREENE & CO.
MILL ENGINEERS

Office, 65 Westminster St., Providence, R.I.
Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.

New Mills in Georgia.

WALESCA, GA., April 27, 1885.

Editor Manufacturers' Record:

The firm of Atherton & Fincher, who formerly ran a cotton mill at this place, has dissolved by mutual consent. We sold the machinery to Mr. J. A. Atherton, who is erecting a cotton mill on Little River (P. O. Too Nigh) in this, Cherokee county. He has 9 cards and 6 spinning frames, and will add more machinery soon. He is now started with above. His two brothers, W. C. & T. Atherton, are building a cotton mill near Jasper in Pickens county, which will be run by water. They have the building about ready for the machinery. I have just completed at this place a flouring mill of the latest improved machinery; also one set of custom wool cards, all just ready to start. We have plenty of fine water-power in this country, and a fine climate for manufacturing cotton. Our country is full of minerals—gold, talc, marble, mica, manganese, &c. All we lack is men of capital to make it the best country in the United States.

E. A. FINCHER.

HINTON, W. VA., April 27, 1885.

Editor Manufacturers' Record:

Our mills were totally burned, with all of our machinery in both lumber and stave mills and considerable lumber; loss about \$4,000, with no insurance. The mills will be rebuilt at once, machinery having already been bought of the Mansfield, Ohio, Machine Works, and Curtis, of St. Louis, Mo., (45 horse-power) all complete, at a cost of about \$4,000.

MILLER & CO.

PRINCETON, KY., April 28, 1885.

Editor Manufacturers' Record:

R. & I. B. Wilford are building a flour mill at Bowling Green. The building is 40x50, and the outfit will be a full roller mill, 100 barrels capacity.

WILFORD BROS. & WILSON.

WHEELING, W. VA., April 29, 1885.

Editor Manufacturers' Record:

We have just completed a new planing mill, into which we will remove on May 1st.

BELTZ, FLADING & CO.

Two Cotton-Seed Oil Mills.

ABERDEEN, MISS., April 27th, 1885.

Editor Manufacturers' Record:

I am now putting in the foundation for an oil mill for the "Aberdeen Fertilizer, Oil & Manufacturing Company," and am about contracting to erect an oil-mill building 34x60 feet, 2 stories, of brick, for the "Aberdeen Oil Mills." Both of these companies are chartered. One of them, I am satisfied, will be in operation this fall; possibly both. Other industries are contemplated, but at present are not in a definite shape.

S. H. BERG.

A Fine Mill and Factory.

MEBANESVILLE, N. C., April 29, 1885.

Editor Manufacturers' Record:

We have built a planing mill, sash, door, blind and moulding factory; size of building 50x75, 3 stories; fitted with Goodell & Waters' machinery; as complete a factory as in State.

WHITE BROS.

FRONT ROYAL, VA., May 1, 1885.

Editor Manufacturers' Record:

I am now building a carriage factory in this town, which I expect to complete about the 10th of this month. The size is 21x42, 2 stories high, with some out-buildings. From the present outlook I expect a good business.

O. F. DOWNS.

GREENSBORO, N. C., May 1, 1885.

Editor Manufacturers' Record:

We expect to enlarge our machine shops at Fayetteville, and manufacture our own cars.

JULIUS A. GRAY,

Pres. Cape Fear & Yadkin Valley R. R.

A New Flour Mill.

LANCASTER, TEX., April 28, 1885.

Editor Manufacturers' Record:

We contemplate building a full roller flouring mill in Waxahachie, Texas, and will commence work at once and complete as soon as possible; capacity from 75 to 100 barrels per day—Nordyke & Marmon Co.'s system.

W. R. MOFFETT & SON.

PARKERSBURG, W. VA., May 2, 1885.

Editor Manufacturers' Record:

Our coal shaft is in Marshall county, W. Va., on the Ohio River Railroad and Ohio river. The coal is 30 feet below the top of the ground, a 5-foot vein of excellent hard coal. Cost of works \$3,000; capacity 5,000 bushels per day. The shaft is now within 8 feet of the coal. Will commence to get coal out next week; can sell all we can get out.

OHIO RIVER COAL CO.

RINGGOLD, GA., April 30, 1885.

Editor Manufacturers' Record:

We are running a planing mill, capacity 8,000 feet per ten hours; a resaw mill, 10 M capacity, and lath mill,—all in connection with a saw mill; produce our own lumber and manufacture it.

J. PARSONS & CO.

MARYVILLE, TENN., May 1, 1885.

Editor Manufacturers' Record:

It is understood that the members of the American Button Co., of this place, will erect a fine roller mill where the button factory is located. A sufficient capital has been subscribed for a fifty thousand dollar bank. The officers have been chosen. Will be opened July 1st, 1885.

H. Y. GRIFFITHS.

CHATTANOOGA, TENN., May 2, 1885.

Editor Manufacturers' Record:

I have secured the location suitable for a cooperage factory at this point, and shall commence to erect necessary buildings at once. Expect to get running in 30 days.

WM. ROSE.

THE Ingersoll Rock Drill Company, of 10 Park Place, have issued an illustrated catalogue of over 100 pages of rock drills, air compressors, quarrying machines, boilers, hoisters and general mining machinery, which will be found of more than usual interest and value to all interested in mining, quarrying, tunneling or similar work. It contains a very large amount of carefully-prepared information, and an especially important treatise on "Compressed Air and its Uses as a Motor"—a subject which is not generally nor thoroughly understood. The Ingersoll Company say:

"On the South Pennsylvania Railroad where 7 miles of tunnel are being driven, 10 of the 11 plants are Ingersoll exclusively. The 4 3/4-mile aqueduct tunnel driving for the city of Washington is rigged exclusively with our machinery. On the New York 38-mile aqueduct tunnel, Brown, Howard & Co., the contractors, use our 'Eclipse' drills and 'Straight Line' air compressors exclusively. Nineteen of the 23 large tunnels which have been driven with machine drills in this country have employed the Ingersoll drill. These are facts which cannot be controverted or explained away. We know that the best machinery is the cheapest, and will not build nor sell any other kind in order to meet cheap competition. Building honest, substantial machinery, we do a correspondingly honest and substantial business."

Besides these works, the company's shops are kept busy supplying orders for mines, railroad works and quarries throughout this country, and also in Mexico, the West Indies, South America, Australia, British India, &c. "The general depression in the manufacturing industry has not," this company write us, "been felt at our shops to any appreciable extent," which is a fact upon which the Ingersoll Company may well be congratulated.

Law Department.

Edited by B. HOWARD HAMAN, Attorney at Law
Baltimore, Md.

It is the province of this Department to reply to enquiries that may be made by our patrons respecting the legal aspects of any matter that may arise in their business. Any questions as to doubtful points of law will be answered without charge in this column. All questions submitted must be accompanied by the name and address of the sender, not however, for publication. Letters should be addressed, Editor Law Department, MANUFACTURERS' RECORD.

BALTIMORE, May 2, 1885.

Editor Law Department,

Manufacturers' Record:

Dear Sir—I am trustee appointed under a will with power to sell. In the present depressed state of values I do not think it advisable to sell; but the estate being in need of funds, would like to mortgage. Have I a right to do this under a general power of sale?

Reply—The power to sell does not necessarily include the power to mortgage. Everything depends on the nature and object of the trust. If an "out and out" sale was contemplated by the testator, such a direction is inconsistent with a capacity to mortgage. If on the other hand his object was merely the raising of money for certain objects, and this can be effected by a mortgage, such a power can be exercised. You had better consult your attorney on this point before taking any further steps.

CUMBERLAND, MD., May 4, 1885.

Dear Sir—A man who is indebted to me has now sufficient assets to pay my claim. I am afraid that he will dispose of them before I can get judgment against him. Can I not begin by attaching his goods and then get judgment against him?

Reply—Unless your debtor is a non-resident, you can begin your suit by attachment only in one of the following instances, to the truth of which you must make affidavit: 1st. Where the debtor has absconded or is about to abscond. 2d. Where he has assigned, disposed of or concealed his assets or is about to do the same. 3d. Where the debt was fraudulently contracted. 4th. Where the debtor has removed or is about to remove his property out of the State with intent to defraud his creditors.

BALTIMORE, MD., May 1, 1885.

Dear Sir—What is the liability of a married woman upon a promissory note in which her husband does not join?

Reply—None.

STAUNTON, VA., May 1, 1885.

Dear Sir—If I buy a bill of goods from a merchant, who expressly warrants them to be of certain quality, and they fall short of his representations, what remedy have I in such a case, and will I be allowed to claim damages?

Reply—If you have not accepted the goods you renounce the sale and recover the price if you have paid for the goods. If you have accepted the goods you can sue upon the warrant and recover the difference between the actual value of the goods and what they would have been worth if they had turned out as represented, with such immediate damages as you may have suffered in consequence of the breach of warranty.

THE Chicago Branch House of the Pope Manufacturing Company, of Boston, has moved from the old quarters, 179 Michigan Avenue, to the new offices, 115 Wabash Avenue, the company having leased the entire building. The lower floor, which constitutes the salesroom, has a frontage of 36 feet and a depth of 155 feet, making it the largest bicycle wareroom in the world. The basement is of similar dimensions, and is neatly fitted up for a riding school. Major William M. Durell has the charge of the company's business at that point, and will carry a large and complete stock of the Columbia bicycles and tricycles, and a full line of parts and sundries.

GOOD HOUSEKEEPING is the title of a new semi-monthly magazine just issued by Messrs. Clark W. Bryan & Co., of Holyoke, Mass. As its name indicates it is devoted entirely to household matters and, judged by the first number, it will be a most excellent addition to the current literature of the day. The subscription price is \$2.50 a year.

The Growth of Atlanta.

At the opening of the Kimball House in Atlanta, April 30, Mr. Geo. W. Adair, in an excellent speech, gave some interesting facts regarding the growth of Atlanta, from which we take the following:

"In addition to these three important measures for morality, for education and for diffusing of knowledge she has a Young Men's Library, an association building that cost \$45,000; number of volumes 12,000; a Catholic library that cost \$3,000; number of volumes 2,000; a Young Men's Christian Association, expenses annually \$4,000, besides other institutions calculated to improve morals, facilitate business, and ameliorate suffering. She has \$30,000 invested in hospitals, \$60,000 in a chamber of commerce, \$30,000 in the Gate City Guards armory. Not content with this, these people, under the inspiration of that great new spirit of co-operation, has lent a liberal hand to many public works calculated to enhance the importance and the best interests of our new city. She has invested in the Air Line, the Georgia Pacific and the East Tennessee & Virginia railroads \$650,000. She has built eighteen miles of well equipped street railway at a cost of \$350,000. She has donated to the capitol of the State of Georgia (every dollar of which ought to be refunded by the State by an intelligent legislature) \$400,000. She invested in the international cotton exposition of 1881 \$50,000, an exhibition that was the pride of the South and the wonder of the nation, and which threw so much light upon the resources and the capabilities of the South, and which gave such pleasure to visitors from all parts of the Union.

She recently has invested \$15,000 in improving a magnificent donation of \$100,000 worth of property by one of her oldest and most distinguished and worthy private citizens, Colonel L. P. Grant.

Peter's park, under the idea of association, has a magnificent investment of \$300,000. The Westview cemetery \$50,000, the Capitol City club \$30,000, the Commercial club \$5,000. Our city has 138 miles of accepted streets, 225 miles of sidewalks, ten miles of streets paved, fifty-one miles of brick sidewalks and curbing. We graded last year thirteen and a half miles; we have a complete sewerage of 100,000 feet; we have a new courthouse, costing \$150,000; a jail, \$50,000; a police station, \$30,000; water-works and its appurtenances, \$500,000.

In 1884 the city of Atlanta expended on sewers and sidewalks \$296,000; for sanitary purposes \$26,000; for an artesian well \$10,000.

This is a wonderful growth when we consider that in 1870, the first reliable census that was taken since the war, our property was valued at \$16,000,300. In 1870 we had 21,000 inhabitants, having gained that from our re-occupying of the burnt city in 1865 in five years. To-day we number not less than 60,000 inhabitants. In 1872 we received only 16,000 bales of cotton in this market. The crop of 1884 reached 145,000 bales; in 1885 they have already reached 169,000. This increase is mainly by reason of the new railroads that have been erected by the impetus given by the liberal donation before alluded to. We have to-day for the handling of this important crop warehouse storage capacity of 45,000 bales. We have three cotton compresses with a capital of \$300,000, with capacity per diem of 3,000 bales, number of employees 200. We have in our city three cotton mills, capital \$900,000; spindles, 4,500; looms, 1,300; number of employees, 850; annual wages paid, \$180,000. We have a grain elevator that cost \$60,000; a cotton seed oil mill, two guano factories and one chemical works, all on one plant; the amount invested \$665,000; number of employees 140. We have a paper mill that turns out two tons of paper per day, employing twenty-five skilled laborers, monthly wages \$1,000. We have an electric light company

that cost \$30,000; a new gas company costing \$225,000. An opera house \$100,000; seating capacity 2,500. This elegant structure draws for the edification of the people, the best operatic and musical talent that walks the American boards. We have the Gate City Land Improvement company, \$100,000; the Baltimore syndicate that are building beautiful homes, \$150,000 invested. We have a Stone Mountain and Granite company, \$100,000 invested that average 150 skilled employees per day. Atlanta's banking capital, including private funds, is \$1,500,000; the Atlanta Home Insurance Company, home capital \$200,000.

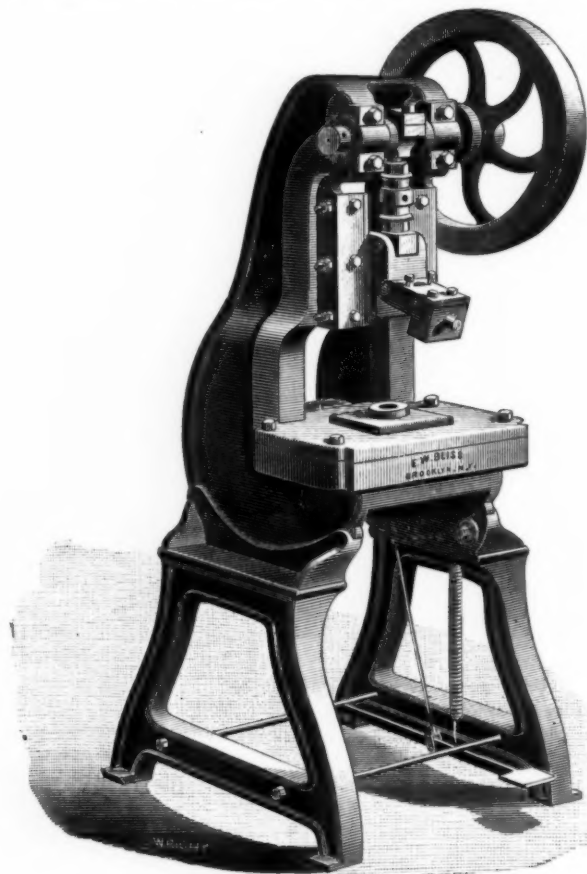
Our wholesale and retail trade in groceries, grain, etc., annually amounts to \$16,000,000; wholesale and retail dry goods amount annually to \$10,000,000; hardware, stoves and tinware amount annually to \$2,000,000; tobacco, cigars, etc., \$1,500,000; liquors, \$2,500,000; drugs, \$100,000; books, stationery and musical instruments, \$1,200,000; clothing, hats and millinery, \$1,000,000; leather, boots and shoes, \$800,000; furniture, \$600,000; crockery, watches and jewelry, \$600,000; lumber, \$1,000,000.

These statistics are taken from the records, and, Mr. President, if they are becom-

bobbin factory, \$11,000, 50 employees; watch factory, \$29,000, 31 employees; bridge works, \$175,000, 160 employees; wind engine company, \$12,000, 13 employees; paper box, bags, etc., 100,000, 175 employees; patent medicines, capital \$150,000; amount of business, \$2,000,000 per annum; number of manufactories of all descriptions, besides many shops for custom work, 500 in number, amount of capital \$6,000,000, product \$12,000,000, employees 8,000, approximate wages, \$2,500,000.

Dwyer's Patent Swing Mandrel or Punch Holder.

The annexed engraving shows one of the most recent improvements in presses for manufacturing small articles in tin, brass, &c. By this device the lower part of the mandrel is made to swing forward to facilitate examination and repairs. When in use it is held firmly in place by two screws, shown in cut. Should a shell or blank stick in the punch, it can be removed in a moment. The punch can be upset, sharpened and replaced in working position without throwing off the belt, or removing the punch or die from the press. Much time and trouble is saved by the use of this improved



DWYER'S PATENT SWING MANDREL OR PUNCH HOLDER.

ing tedious, just shake your Manchester head and I will decline the consulship.

Well, if you want more, our coal and wood trade is \$2,000,000 a year; wagons and buggies, \$500,000; horses and mules, \$400,000; butchers and markets, \$800,000; agricultural implements, \$300,000; marble works, \$200,000; total, \$42,000,000 per annum. Add miscellaneous business, guanos, fruits, etc., and we have a grand total of \$50,000,000 per annum.

Last, but not least, is our small industries, the pride and profit of the city. We have invested in foundries \$500,000, 350 employees; lumber, sash and blinds, \$250,000, 625 employees; bakeries and canderies, \$200,000 and 250 employees; carpentering, \$150,000, 600 employees; brick manufacturing, \$150,000, 600 employees; clothing, \$100,000, 250 employees; tin and sheet iron, \$700,000, 150 employees; spring beds, \$45,000, 60 employees; flouring mills, \$140,000, 50 employees; carriages and wagons, \$50,000, 120 employees; trunk factories, \$75,000, 110 employees; ice factories, 100,000, 35 employees; agriculture, mining, manufacturing and saw mills, \$300,000, 250 employees; shuttle and

mandrel, dies last longer and can be kept in repair much more easily than is possible with the ordinary mandrel, because the dies do not require re-setting every time the punch is upset or sharpened, or when a blank gets stuck in it. The value of this device will be at once apparent to those manufacturing small articles of light sheet metal. Full particulars may be had by addressing the maker, Mr. E. W. Bliss, Brooklyn, N. Y.

THE Louisville Asphalt Varnish Co., Louisville, Ky., write us: "The improved demand for our asphalt varnishes and bridge and car paints has necessitated our enlarging the capacity of our works two-fold, and capital stock, which was increased from \$12,000 to \$17,000 recently, we propose at once to make \$50,000. Being within the Southern boundary, we are pushing our trade South, and already have customers and consumers in every Southern State. It may be of interest to those owning shipping, especially on the Gulf coast, to know that our asphaltum ship paint is being practically tested, and proving as efficient as copper paint as a protection against barnacles and the navy worm."

What the South Needs.

Dr. Chas. W. Dabney, Jr., Director of the North Carolina Experiment Station at Raleigh, has written a very interesting letter to a gentleman in Virginia, in which he shows the great need of industrial schools in the South, that manufactures may, through their influence, be developed. The letter is as follows:

1. You can increase the rewards of agriculture by teaching improved methods in farming, the use of manure in the right way, the use of labor-saving appliances, etc. A great deal can be done to the same end by the introduction of new crops and the renewal of old ones. But the thing most needed to be taught is the better harvesting, saving, preparing and manufacturing of agricultural products. The introduction of the simple methods of preparing food-products, drying, canning or manufacturing them at home, so as to secure to our farmers the highest prices paid for such products, is a thing much desired. Why is it that all the choicest food products sold in our Southern towns, the canned meats (from Chicago,) the canned fruits and vegetables (from New York and Baltimore,) the butter (from Ohio and Pennsylvania,) the hominy, grits, oatmeal, cracked wheat, &c., (from Illinois or the Northwest,) and even a large part of the heavy meat, meal and flour—why is it that all these things consumed in the towns and villages now, and rapidly invading the country itself, are not produced at home? Or, taking a single case, why is the green corn, put up chiefly in Maine, sold all through the South? Are the arid soils and cold springs of Maine especially adapted to garden corn? We don't think there is anything in Maine especially adapted to this industry, except the wit of the Maine man! Why do not our people manufacture more of these things? I do not know any reason, except that they do not know how. Do they want the enterprise?

2. We need to advertise our resources by expositions, publications, &c., and thus invite the immigration of labor and capital.—Virginia has a soil superior to that tilled by three-fifths of the people of the New England, Middle, Western and Northern States, and a climate incomparably better than theirs. Shall you not secure some of the surplus population of those States?

3. We need more manufactures of all kinds, and we should begin by manufacturing what we can use at home from our abundant crude material. We can begin with the simplest manufactures, like those of wood, for instance. Why buy all our buckets, baskets, kitchen utensils, and most of our dairy utensils, with many of our farm wooden implements, from North and West. The establishment of manufactures will increase the prices paid for all the products of the farm, and give remunerative labor to all the idle hands. The greatest good that factories do, is in giving employment to the boys, girls and single women. Unproductive labor, which constitutes over one-half the burdens of every community, is thus changed into productive labor. Manufactures are thus the key to the situation; manufactures, first, of food products, of wood, iron and all the other most accessible crude materials, to be followed by the more refined arts in due time. These manufactures will give employment to the idle brains and idle hands, thus keeping them at home, and converting their lives, otherwise a burden, into productive lives.

It appears to me that the explanation of all failures in manufacturing are traceable to a want of technical knowledge. Hence, I believe that the best means of promoting the manufactures which we need is the establishment of technical or industrial schools. All other people find it necessary to support such institutions. Germany has a real-schule, the business or industrial school for every gymnasium or classical school, and an institute of technology for every university for

pure science, besides special technical schools of agricultural, engineering, architecture, forestry, mining, &c.

Look over the South, and where are her technical schools? The so-called agricultural and mechanical colleges are generally a failure, because they were made into English academies instead of the industrial schools they were designed to have been, or because the industrial features were subordinated to the general education. The industrial department of universities are generally a failure for the same reason. The agricultural department in our universities even where well managed and endowed, have few or no students. Take up the catalogues, and you will see that their agricultural and other industrial schools are doing very little. What is the trouble? The experience of the world shows that technical, and especially industrial, schools will not thrive under the shadow of classical and literary professions. This is the experience of all continental countries, and the lesson we have from the success attained in this country so far. Witness the Massachusetts Institute of Technology, the Lowell School of Practical Design, the Worcester Free Institute, the Stevens Institute of Technology, and the Rensselaer of Polytechnic, at Troy.

But the chief reason they have not succeeded is because in most cases they were not true industrial schools. Where are the workshops? The Miller Manual Labor School of Albemarle has workshops, and is probably a success as an industrial school. But this is the only one I know in the South. Industrial schools and higher technical institutions will promote, I believe, the establishment of manufactures, and the upbuilding of our section more than can be done in any other way.

The legislature of North Carolina has passed an act providing for the establishment of a district school, where shall be given "instruction in wood-work, mining, metallurgy, practical agriculture, and in such other branches of industrial education as may be deemed expedient." The State of Georgia has passed, or has under consideration a similar act.

Manufacture of Gun Barrels.

The manufacturing of gun metal and making it into gun barrels, says an exchange, may be classed as one of the fine arts. If a thorough and reliable metal is wanted for purposes independent of gun barrels, how often we hear of gun metal being used. The past fifteen years have witnessed great changes and wonderful improvements in the manufacture of gun metal. At one time English gun-makers depended entirely upon the supply of scraps of fine iron and mild steel, such as horse-shoe nails, old coach springs, clippings of saws, steel pins, scraps, great and small, of all kinds. The pieces were carefully sorted and placed in a cylinder revolving slowly, which polished and cleaned them by attrition one against the other. They were then cut in small pieces of uniform size, and placed in the furnace until at a white heat, then gathered in a bloom, after which, being placed under the hammer, they were welded into a rough tube of iron. This tube was rolled into bars cut into lengths, and the number of lengths required bundled together and again brought to a white heat, then hammered into rods of 5-16 inch square, or smaller or larger, as demanded by the barrel welder for the work in hand.

At one time fine Damascus barrels were made almost entirely from old coach springs. It was found this would make very strong and fine barrels, and showed great freedom from "greys" (grey specks that disfigured the barrels, but did not impair the strength). It was thought the peculiar wear the fine metal in the coach springs had been subject to had a tendency to peculiarly fit it for gun-barrel metal. Be this as it may, there were cer-

tainly fine tubes made from coach spring metal. As the years rolled on the demand exceeded the supply, until at last gun metal had to be made from pig metal of the very best ores.

So far reference has been made only to the metal that goes into the make-up of fine Damascus and laminated barrels. Inferior metal scraps of all kinds are used for making the barrels of the cheap guns. This metal is graded and named "shamdum" "skelp" and "charcoal iron;" shamdum is the poorest; from it the cheap twist barrels are made. From skelp laminated and coarse Damascus figures are manufactured, and it makes a very durable pair of barrels. Charcoal iron is made up into medium and coarse figure Damascus and laminated barrels. This metal is composed of old files and pieces of steel of the same sort. It is broken up into small cubes, then put in the furnace and worked into a bloom; the bloom is then heated and rolled into barrels ready for use. This metal makes good and desirable barrels. The use of the above-described materials has been almost entirely superseded by the more modern methods of preparing gun-barrel metal right from the pig. The best of pig iron is obtained and placed in the furnace and reduced to a fluid state. This operation cleanses it from all dross. It is then allowed to cool, and while the temperature is going down it is gathered and worked together in blooms, and it then goes to the steam-hammer, under which it assumes the shape of square blocks. It then passes through various rolls until the diameter and length of bar required are attained. The hammering has condensed the metal and eliminated many of the impurities. The rolling has augmented its tenacity and ductility, elongating and ramifying the fibres. The mild steel to be used in connection with the fine iron is prepared in a similar manner, and is made from best Swedish pig iron, and becomes very tenacious and elastic under the heating, hammering and rolling. In these three operations there is a constant loss of metal. The loss in puddling is about 16 per cent., and in rolling from 12 to 13 per cent. The bars, being now ready, are cut into equal lengths and huddled together, put in the furnace, heated and welded, and elongated by rolling into rods. This heating, rolling and hammering is gone through with from five to seven times in the operation of making first-quality brands.

The quantity of mild steel to be used in connection with the iron having been determined on, say 55 per cent. of mild steel in rods and 45 per cent. of fine iron in rods $\frac{3}{8}$ inch square, if a fine-figured Damascus is wanted, four rods of iron and four of steel are laid together, first one of steel, then one of iron, then one of steel, and so on until all are bundled together, making eight in all. This bundle is then brought to a white heat, and the successive layers of steel and iron are welded together and rolled out in a rod; the rod is again heated, brought out, placed in a machine for the purpose, and twisted like a rope until it has 10 to 15 turns to the inch, the number of turns determining the fineness of the figure. This severe twisting has shortened the rod to the desired length and increased its thickness 50 per cent. Two of these solid spine rods are now placed side by side, with the twistings running in opposite direction to each other, reheated and welded into one, and rolled into a flat rod of, say 9-16 inch wide for the breech end of the barrels and 11-16 inch wide for the muzzle ends. The barrels are made in two parts, and in the last operation of welding, called "jumping," they are brought together in the middle. These rods of 9-16 and 11-16 inch are again heated and twisted into the form of a spiral tube; this tube is heated to a white heat, and, glowing under the master hand, is by a quick and deft movement "jumped" on the anvil and the open coils welded together; they are then immediately placed on a grooved rest and hammered lightly to round them up.

All the coils of the muzzle and breech ends of the barrel having been thus welded, the next operation is to join the breech and the muzzle together. This is a very neat and artistic piece of work, but is quickly and perfectly performed, and on first-class Damascus or laminated barrels would take the eye of an expert to detect the jointure; the whole tube, from breech to muzzle, looks as if made from one coiling of rods. The ends of the two coils are then heated and joined together; a light tap on the anvil, and the welding is completed.

In all these operations of heating, hammering, twisting and rolling, the iron has been in the fire seven or eight times, and under each manipulation has grown purer, stronger, with increased density and ductility, resulting in the strongest, and at the same time most elastic, iron known, with one exception, and that is the Whitworth fluid compressed steel. The tensile strength of high-class gun metal is enormous. Experiments made in testing a variety of rods show; A rod 6-16 inch wide by 5-16 inch thick and 1 foot long was equal to a tension of over 11,200 pounds. This mode of proper thickness carried out in a gun barrel would sustain a strain of over 6,000 pounds to the square inch of the barrel. It is, therefore, obvious that the barrel is abundantly able to sustain the pressure exerted by gunpowder gas. The idea is generally prevalent that gun barrels of all kinds are made from one piece of iron and steel—that is, a solid bar of metal is prepared and a hole bored through it from end to end. This is true of some very cheap guns made from decarbonized steel. I have sought to explain that Damascus and laminated barrels are made from two or more rods of different kinds of metal; twist barrels may be made from one or more rods. When made from one rod, the rod is simply coiled and welded.

The fowling piece must be light, so as to be handled quickly and not fatigue the sportsman carrying it, and at the same time sustain its proportionate charge of powder; hence if the barrels are light, they must at the same time be strong. All of which is attained by making the metal as described. They are also beautiful to the eye, the mild steel and fine iron being incorporated so intimately and regularly as to form a beautiful curled figure. The figure is but faintly perceptible in the bright metal. It is only when the barrels are finished and the brownish put on that it comes fully out; the rich dark brown color is the iron, while the lighter shade is the steel; the two blended together and running regularly look not unlike a piece of lacework. Ladies who have had their attention called to this artistic work have admired it and wondered why they had not known it before, and concluded that a fine gun was something more than a mere piece of iron or wood. To convey an idea of the expense of making up a pair of barrels in the waste of raw materials, it may be added it takes 19 pounds of metal to weld and make up into an ordinary pair of 12-gauge barrels, which, when completed with top and bottom ribs and lugs, weighs $4\frac{1}{4}$ to $4\frac{1}{2}$ pounds. A fine gun can only come from skillful hands; and skillful hands are paid high wages. We must, therefore, reason that the prices put on fine guns are not too high. The possessor of a fine gun has a thing of beauty and a joy forever.

A POINT PLEASANT, W. Va., dispatch of April 19, says: Yesterday leases, covering nearly 25,000 acres of land in the vicinity of Glenwood, were filed with the county clerk. The principal lessee is a Mr. Willis, of Gallipolis, O., and his company represents a cash capital of \$200,000. The ground leased is a vast tin mine, assaying nearly 40 per cent. of tin to the ton, being ten times richer than any tin mine in Europe.

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Making Pig Iron at a Loss.

[The Age of Steel.]

I have never had any experience in making pig iron, but have done business with pig iron manufacturers some twenty-five years. During this time I have seen abundant evidences of profitable and unprofitable phases of the business. I do not believe that any money is being made in the South in the manufacture of pig iron at the present time. This I say advisedly and with the knowledge that many will differ from me in this view, but I believe that those who differ from me, if they are iron manufacturers, are simply deceiving themselves. I think, however, that those who are contemplating building furnaces now are doing a very wise thing. Generally furnaces are built when prices are high and the business is paying large profits. Prices do not stay high long, and even if furnaces get in blast before the down grade comes, they pay high prices for their building material and labor, and naturally run their furnaces in an extravagant manner, and generally lose money for a long time on the down grade prices.

The furnaces built now would have the advantage of materials at very low figures. I believe it would be the wisest thing when built to let the furnace stand until the advance comes, but even if they should start before the advance all the circumstances would tend to their running upon the most economical basis, and the amount lost now would probably come back to them in the advantage of their experience when the up turn comes. Statistics show that the up grade in prices of iron in the past has continued some from two to four years, whereas the down grade has continued some from five to seven years, and yet it is nevertheless true, that during the greater part of the season of decline there are very few manufacturers who do not believe that the market will re-act within from six to twelve months. It is expensive business to stop the furnace, consequently many of them prefer to stand a loss for six or twelve months, believing the turn will come at the end of that time, but the continuance of this policy for several years exhausts a great many furnaces before the up-turn comes.

If iron producers would run their furnaces when they are making money and stop them just as soon as the decline had reached cost and let them lie idle until the up-turn came again, the business would be almost universally profitable; but it is difficult to realize at any time during the decline that the depression will last so long or the prices go so low, particularly as the market prices reach the cost of iron very soon after the commencement of the decline. We have in mind now a charcoal furnace, who, some years since, were struggling to keep even on iron bringing them about \$15.00 at the furnace. When it advanced and reached \$35.00, they were probably making from \$12.00 to \$15.00, as the cost did not keep pace with the price in the upward movement; but after iron had reached \$60.00 and commenced to decline, they found themselves selling iron at cost when it reached \$35.00 on the down grade. In the decline as well as in the advance, the cost was a long time in responding to the change in price.

It is very difficult to get a manufacturer to acknowledge that he is losing money; it is more difficult for him to get his own consent to stop his furnace and do nothing for a long period, which may be several years, even if he knows he is losing money. He looks forward to the up-turn that he expects to come within a few months. The depression in the price of iron has now continued so long that the cost of making it has declined probably nearly all it will. It is likely that many furnaces are losing less by running than they would to stop. Those who can hold on and keep their property, and those who build furnaces now at these low prices, are certain to reap a rich reward when the advance comes.

Timber and Minerals in Abundance.

Some Interesting Facts from Tennessee.

BRISTOL, TENN., May 4, 1885.

Editor Manufacturers' Record:

The Unaka Timber Company was organized on the 20th ultimo at Grand Rapids, Michigan, with Mr. George A. Rumsey, president; H. B. Wetzel, vice-president, of Grand Rapids; W. C. Winchester, of Big Rapids, secretary; and H. P. Wyman, of Grand Haven, treasurer, with a capital stock of \$100,000. The object of the company is to buy timber lands and timber, and erect large saw mills and other manufactories on the Nola Chucky River in East Tennessee. This company have bought of me 10,000 acres of white pine land, and the vice-president is here now looking over other white pine and poplar lands adjoining those purchased. They have not yet determined whether they will utilize the river in putting their lumber on the railroad or build a branch road to the premises. We are now having some attention paid to our immense iron ore deposits and soon expect iron men to take hold. I am told by competent judges that in two counties in Southwest Virginia, and two or three in extreme East Tennessee there is more iron ore and of greater variety than any other section of the United States of the same area. I have many of these immense deposits of iron which I can sell at a nominal price, and coal of the most superior quality both for making iron, and grate and stove purposes.

The same section also contains marble of almost any shade of color in abundance. Sandstone for building purposes in endless quantities, brown, red and grey in color, and many of the mountain people shape this out for their chimneys, hearths, &c., with an ordinary chopping axe. But when exposed to sun or fire it becomes very hard and is fire-proof. Our timbers are the best to be found in any of the Southern States and in consequence of the altitude of this section our white pine is equal to that of Michigan. Our yellow poplar cannot be excelled in any section and I can show yellow poplar trees that are 100 feet to first limb and as straight as a gun barrel. Probably many will be surprised when I say that some of these poplar trees will make over 10,000 feet of one inch lumber to the tree with not exceeding 10% culls, but these are facts and not hearsay, as I am a practical lumberman, as well as real estate agent, and know whereof I speak.

A valuable deposit of zinc ore has lately been discovered on the land of P. W. Sheaffer, of Pottsville, Pa. This land lies about 4 miles from Union Depot, Sullivan county, Tenn. Mr. Sheaffer owns nearly 100,000 acres of white pine land on the South Fork of the Holston River in this and Johnson counties, Tenn., and soon this will be developed, and make glad the hearts of the laboring people. A. A. HOBSON.

The Gold Mines of North Carolina.

Since the first breaking out of the "gold fever" on the discovery of the precious metal in California in 1848, the gold mines of the Rocky Mountains and the Pacific slope have continued to attract attention, to the neglect of what is much nearer home if not so great in extent or rich in external indications. Few persons who did not have actual knowledge of the importance of the gold mines of North Carolina could have formed any conception of their value. The magnificent exhibit made by North Carolina, of gold ores in the exposition, has proved a revelation to many. These ores are so numerous, massive and rich, and are so lavishly displayed that they rival the mineral exhibits made by Colorado, Montana, Nevada and other mining regions of the West, and they fairly astonish the observer who only knew in a general way that some gold

existed in North Carolina, Georgia and Virginia.

Fifty years ago, and before the discovery of gold in California, the mines of North Carolina and Georgia attracted much attention, and they were such important factors in the gold supply of the United States that the government was induced to establish mints in the South to coin the precious metals taken out there. As a matter of fact, the mint at Charlotte, N. C., was established in 1837, and one at Dahlonega, Ga., was started in 1838.

Official statistics show that gold was discovered in North Carolina in 1824, in Virginia in 1829 and in Georgia in 1830, and from the time of these discoveries to the year 1835 the mines of these States had sent altogether to the mint \$4,377,500.

Desiring to gain some definite and specific information on the gold mines of North Carolina, a representative of the New Orleans Picayune called on Mr. T. K. Bruner, who has charge of the extensive and well arranged mineral department of that State at the World's Fair, and requested some particulars. These Mr. Bruner kindly gave, entering into interesting details which were brought out by questions. His statement is given and is substantially as follows:

Allow me to remark in the outset that the first gold found in America was discovered in North Carolina, and years before that humble Georgia woman, Mrs. Peter L. Wimmer, found the first nugget in California and started westward the adventurous pioneers who have since made that land blossom. North Carolina had produced thousands of dollars' worth of native gold, and some mining work was being conducted in a crude way. Since this time, work has been going on in many localities almost constantly—excepting, of course, the time spent in war. In '61 almost all the mines were abandoned and but little activity was known in the region until a few years ago. This fact accounts in a measure for the tardiness in development; but let me go on with the main idea of your question. Within the last six or eight years a new and more determined effort has been made to develop the industry, and I must say with the most flattering prospects of success. This new impetus has been felt in several ways, but most prominently in giving rise to an ambition for discovery. A natural result of this exploitation work is the addition of many new localities to the already long list in North Carolina. The area of gold producing districts now extends over 30 counties. The deepest and richest of these deposits are situated a little west of the centre, and on a granitic axis which runs in a north-easterly direction across the State. The prominent gold producing counties are Guilford, Davidson, Randolph, Roman, Stanley, Montgomery, Cabarrus, Gaston, Mecklenburg and Union.

The ores embrace almost every variety and combination of auriferous sulphides, galenites, blendes and chalcopyrites, and free gold in the brown ores. These occur in veins. In "drift" or "float" quartz, gravel beds and on the surface "dust" and "nugget" gold is found.

Suppose I enumerate some of the vein mines that are being actively worked to-day. In Randolph county I point you to the Hoover Hill Mines. They are down 250 feet in a metamorphic state, and the ore averages from \$7 to \$8 per ton, while occasionally it runs very high in free gold. The mine is producing now and has an output of \$150,000.

The Ore Knob Copper Mine, in Ashe county, has produced over two millions of dollars. The mine has been worked to a depth of 400 feet and is equipped with smelters and refiners. The ore, chalcopyrite, will average about 8 per cent., but occasionally has very rich bunches in the lode.

At the Phoenix Mine, in Cabarrus county, a depth of 300 feet has been attained. The

It is a low grade talco-slate, and there is in sight more than one hundred thousand tons. The production has been a little more than \$50,000. An English syndicate has purchased the property and their superintendent is erecting a 30-stamp battery. The property, if carefully handled, must turn out gold in paying quantities.

At the Bright Mine, same county, the ore lies in a mass, and resembles the Russell ore. Here the mass is several hundred feet in width and has only been prospected to the depth of 40 feet. Assays run from \$4 upward. Some New England capitalists bought this property last spring and are making preparations to work it on a more extensive scale.

The Little Lead Mine, in the same county, has been worked to the depth of 75 feet and has produced \$10,000. There are more than a thousand tons of ore, worth from \$4 to \$6 in sight—ore free milling.

On the Morris Mountain property work is progressing finely at the newly discovered locality. The ore is in a free milling state, and they use the simplest amalgamating process. The production, at the depth of 25 feet, has been about \$5,000.

The development at Silver Hill, in Davidson county, has reached a depth of about 700 feet. This is one of the very few mines worked during the Confederate war. Lead was scarce, and this argentiferous galenite and blend was smelted and run into bullets. The ores are complex, and are worth per ton: Gold \$10, silver \$25, lead 20 per cent., and zinc 10 per cent. This mine has produced more than \$200,000.

At the Rudisil Mine, in Mecklenburg county, a depth of 280 feet has been attained in the workings. The ore, a dense sulphide, is of very high grade, and the yield amounts to a million dollars.

Capps Hill Mine, same county, has been worked a little more than a hundred feet in depth, and has produced \$25,000. Work is being vigorously prosecuted, with more than a thousand tons of good ore in sight.

The St. Catherine Mine, also in Mecklenburg county, has reached the depth of 200 feet. From this level they are hoisting a fair grade of sulphide ore, but the yield has been small, only reaching a few thousand dollars. A practical process for working sulphide ores is needed to make the output at this and many other localities available.

In Stanley county there is some little activity. At the Crowell Mine they are working in the 150-foot level. The ore is a talco-slate and quartz, and the little seams of quartz permeating the lode are sometimes exceedingly rich in free gold. They are using Chilian mills.

The Biles Mine, same county, is down 65 feet. The ore is of high grade, and the yield has reached \$20,000. They have a stamp mill.

One other property in Stanley county is worthy of mention. It is the Barringer Mine. The property was opened before the war, but was abandoned before any depth was attained. It was re-opened two years since and discovered to be a very rich vein. They have not yet reached a depth of fifty feet, (a question of title had to be decided in the courts,) but the yield has been profitable.

More activity prevails in Rowan county. The Gold Hill Mines, discovered in 1842, have been developed to the depth of 750 feet, with drifts or tunnels at this depth of 900 feet in lateral extent. Nearly \$4,000,000 have been taken from these mines. The ores are rich free smelting slates on the surface, but change into sulphides of iron and copper as depth is attained. They have a splendid plant of machinery, which is idle ores, auriferous sulphides, will average \$15 per ton, and is reduced with ordinary battery and treated by the Meares chlorination process. The output is about \$40,000.

The Big Russell, in Montgomery county, has been worked in an open cut to the depth of 100 feet, and from 15 to 60 feet in width.

now. The water is being kept in fork, while the English owners are selecting a new superintendent.

The Reimer Mine, in the same county, is down 175 feet. They have two working shafts, 400 feet apart, on the same vein, and they are connected at the 150-foot level. The ore is a high grade sulphide; vein four feet wide, with a thousand tons in sight. Output \$35,000.

At the Honeycut Mine, same county, the depth reached is 300 feet. They find a fine grade ore—slate—which is worked in a Howland pulverizer mill. Output \$25,000.

At the Dunn's Mountain Mines, same county, they are hoisting ores from the 200-foot level. They have a small vein of brown and sulphide ores, but of good grade. The mine is well equipped. Production \$20,000.

The Davis Chlorination Works are at the Yarkin Mine, also in Rowan county. The ores at this locality have not paid, because they are much below the average in value.

The Union Gold and Copper Mine, on the dividing line between Rowan and Cabarrus counties, is worked in an open cut; is 75 feet deep by from 15 to 45 feet in width. The ores are auriferous chalcopyrite, green carbonate of copper and red oxide. Another part of the property has a shaft of no great depth worked for an argentiferous blende. The output amounts to \$30,000.

From this showing you perceive that there is considerable activity in the deep mining districts, but let me tell you about those placer deposits; the oldest discoveries, as you know, were of this character. It is impossible to estimate, except approximately, the output of the State in placer gold. The Reed Mine, in Cabarrus county, has produced largely, and it was here that the 28-pound nugget—the largest of the Eastern nuggets—was found.

The Parker, another noted placer deposit in Stanley county, has added \$200,000 to the wealth of the world. The Portis Mine, in Nash county, goes a bowshot ahead, having increased our wealth more than a million dollars. The Shuford, in Catawba, has a splendid producing record and is still producing.

Montgomery county has the reputation of being the greatest free gold producing county in the State. The Sam Christian Mine takes the lead, with a record of \$200,000. Some eight or nine pounds of the yellow metal may be seen in our show case. The Beaver Dam Mine follows close on the heels of the Sam Christian, while Bunnel Mountain with \$20,000, the Worth with \$15,000 and the Krow with \$10,000 bring up the rear of this procession of gold producing placers.

It is said that the Montgomery people never fail to make a crop. Should drought destroy their growing crops, they have but to repair to the then dry beds of the branches and smaller creeks, and with shovel and pan, gather the golden harvest from the grit deposits. An expert can make from one to three dollars a day in this way. The country stores take "dust" and nugget gold in exchange for goods, allowing 85 to 95 cents per dwt. for it.

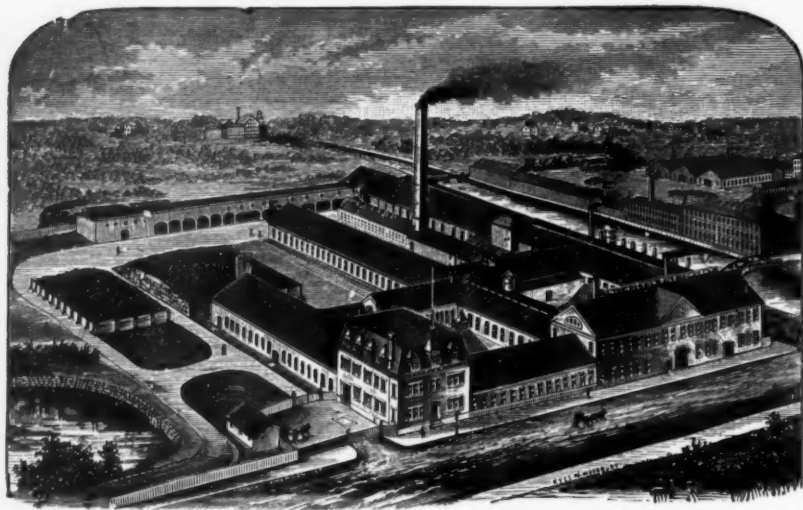
The estimated product of North Carolina gold is \$30,000,000. How shall we increase those figures? Just here hinges the great question. The problem to be unraveled is a practical, cheap method for manipulating the sulphide ores of the State. Chlorination is too expensive except on concentrated high grade ores. Metallurgical works are needed where the ores may be treated for all they are worth.

THE MARKETS.

OFFICE MANUFACTURERS' RECORD,
BALTIMORE, May 5, 1885.)

Trade generally is only fair, and since our last issue there has been no change of importance in the markets. The more peaceful aspect of the European troubles have rather dampened the expectations of those who had calculated that a war between Russia and England would inure to the benefit of America's business interests.

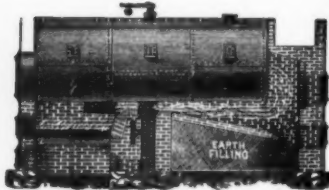
In the local manufactured iron trade, business continues very unsatisfactory, with but little doing and prices extremely low. We quote nominally as before, viz:



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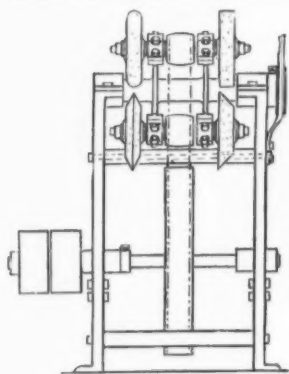
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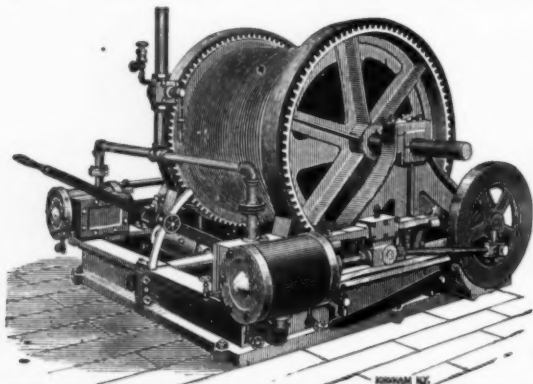
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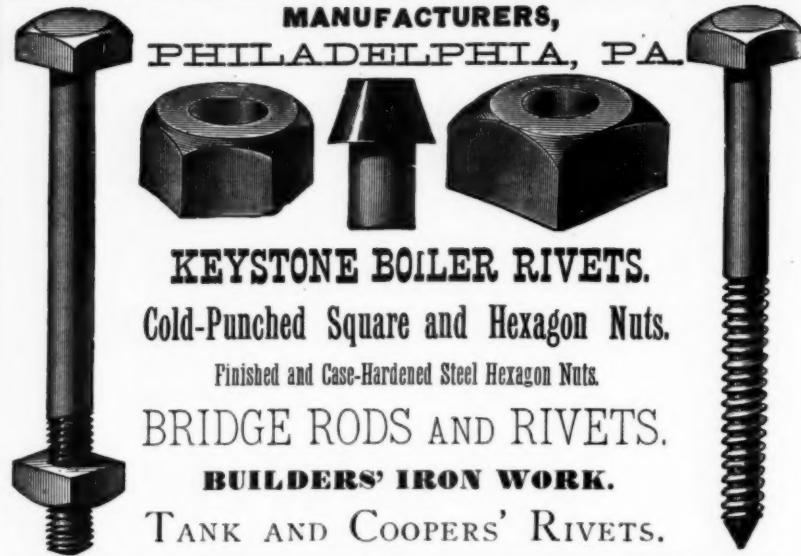
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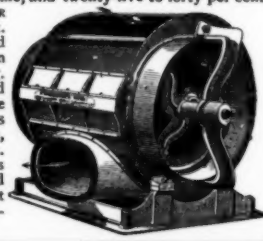


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This Cupola has made a great revolution in melting Iron. It differs from all others in
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more perfect combustion, extracting less carbon
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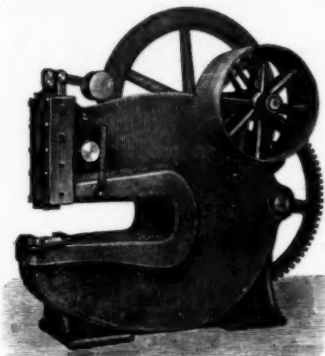
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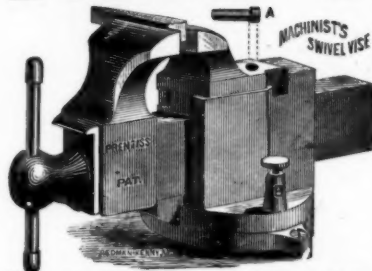


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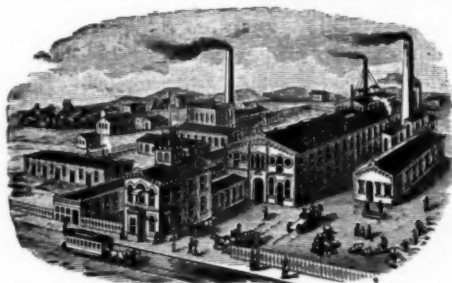
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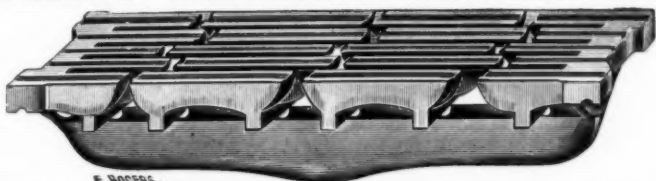


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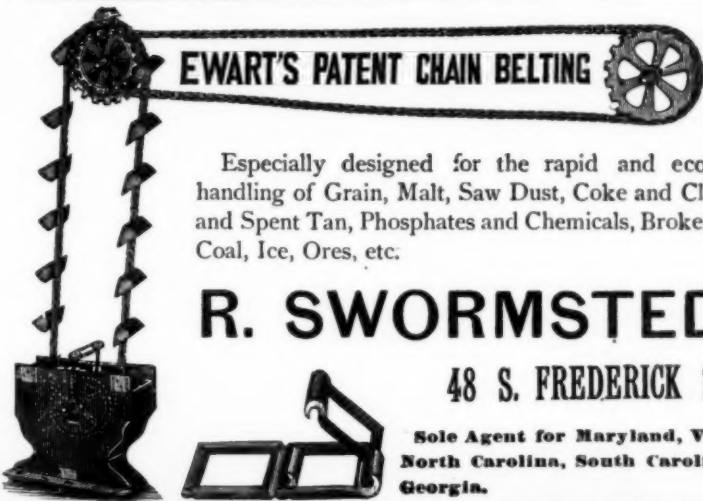
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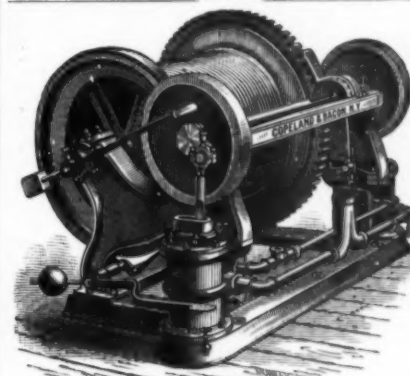
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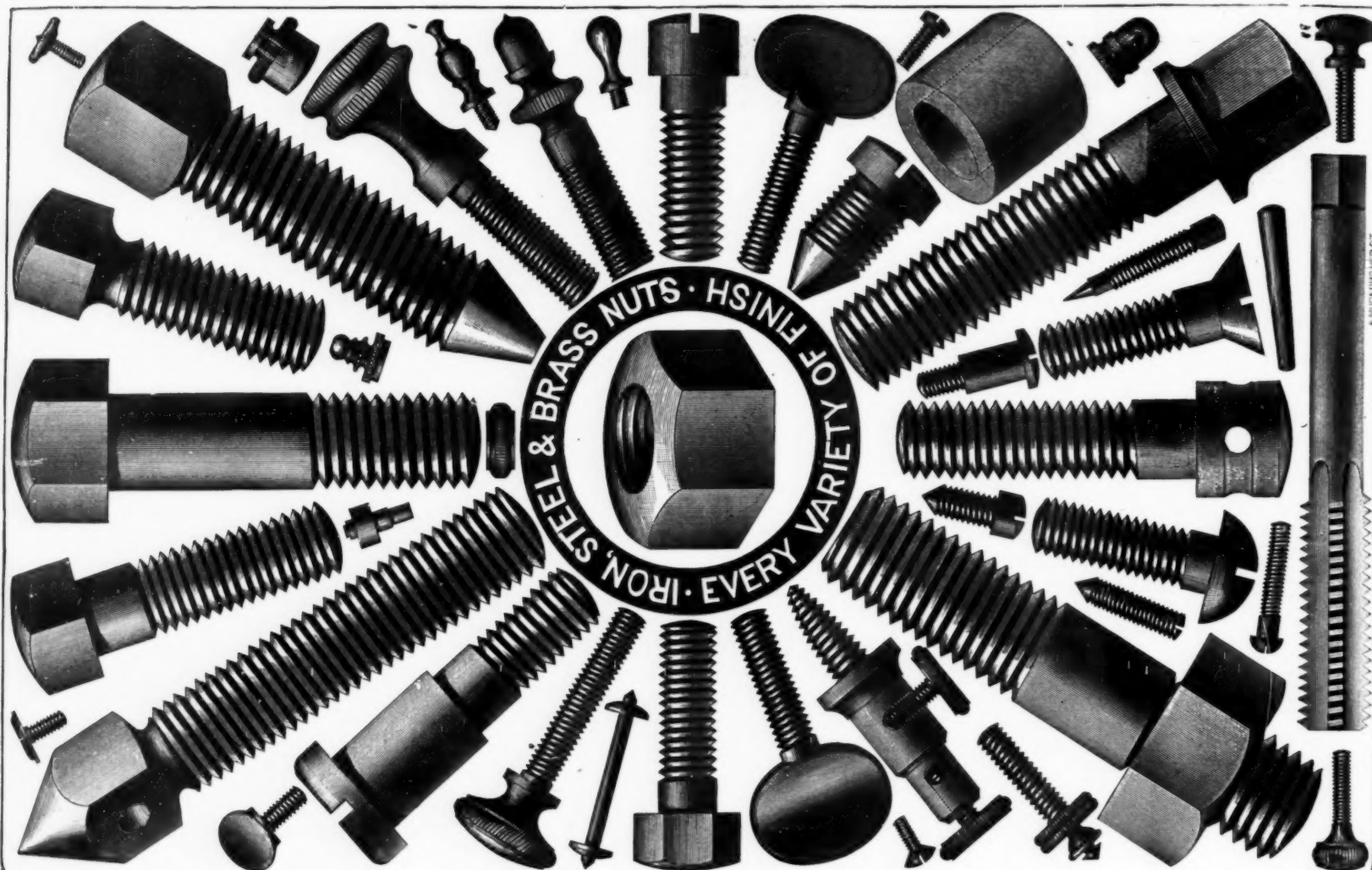
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Cabinet, Gaylord.....of some numbers Jan. 1,
Cabinet, Bridgeport.....1881, dis 25 & 2 %
Cabinet, P. & F. Corbin.....dis 40 %
Trunk, new list, Jan 1, 1881.....dis 15 & 2 %
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Plate.....dis 33 1/2 & 2 %

DOOR LOCKS, ETC.

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Norwich.....for cash.
P. & F. Corbin.....
Russell & Erwin.....
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Scandinavian, "Norwich".....dis 50 & 10 %

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sq are Nuts.....8 c off list.
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Per dozen.....75 cts. net

PLAITING MACHINES.

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January 1879.....dis 20 & 10 %
Bailey's.....dis 20 & 10 %
Plane Irons, Butcher's.....dis 50 %
Plane Irons, Auburn Tool Co.....dis 20 %
Plane Iron, Ohio Tool Co.....dis 20 %
Plane Irons, Sandusky Tool Co.....dis 20 %

PLIERS AND NIPPERS.

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Hall's Pat. Compound Lever Cutting Nippers,
No. 2, 5 in. \$13 50; No. 4, 7 in. \$21 per doz., dis 25 %
Gas Pliers.....dis 50 %

PLUMBS AND LEVELS.

Disston's.....dis 40 %
Stanley R. & L. Co.'s Pat. Adjustable.....dis 60 & 10 %
Stanley R. & L. Co.'s Non-Adjustable.....dis 60 & 10 %
Chapin's Patent Adjustable.....dis 60 & 10 %
Chapin's Non-adjustable.....dis 60 & 10 %
Standard Rule Co.'s New Adjustable.....dis 60 & 10 %
Standard Rule Co.'s Non-Adjustable.....dis 60 & 10 %
Pocket Levels.....dis 65 & 10 %

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Sliding Door, Bronze Wrt. Iron.....dis 12c. dis 35 %
Sliding Door, Iron, Painted.....dis 4c. dis 10 & 10 %
Horn Door.....dis 1/2 3/4 5/8
Per 100 feet.....\$2.60 3.60 5.60-dis 10 %

R. D. for N. E. Hangers—

Small. Med. Large.
Per 100 feet.....\$2.10 2.70 3.00 net.

RIVETS.

Iron and Tinned, new list, Dec. 10, 1881.....dis 40 %
In bulk, new list, Dec. 10, 1881.....dis 40 %
Copper Rivets and Burrs.....dis 50 & 10 %
Nos. 7 8 9 10 11 12 13 14 15
dis 49c. 50c. 52c. 54c. 56c. 58c. 60c. 62c. 70c.

RIVET SRTS.

Stair, Brass.....dis 25 %
Stair, Black Walnut.....dis 60c. per doz.—net

RULES.

Chapin's.....Boxwood. Ivory.
Standard.....dis 75 %
Stanley.....dis 40 & 10 %
Stevens & Co.....dis 70 & 10 %
Stevens & Co. Miscellaneous.....dis 50 & 10 %

SAD IRONS.

Self-Heating, Charcoal.....dis 9.00 net
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Enterprise Star Irons, new list, July 20, '82.....dis 35 %
Comb'd Fluter and Sad Iron.....dis 15 %
Common Sad Irons.....dis 25 & 10 %

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Baeder & Adamson's Star.....3.75 per r.m.
Baeder & Adamson's Emery r.m. \$6.50 to \$11.50
J. Bartle's Sand, Flint and Emery Paper.....dis 30 & 5 %

SASH CORD.

Common.....dis 14c. net
Patent.....dis 17c. to 18c. net
Silver Braided Lake Hemp.....dis 10 %
Silver Braid, Lake White Cotton, dis 50c. dis 10 %
Silver Braided Lake Drab Cotton, dis 55c. dis 10 %
Silver Lake Cable Laid, Bengall Unbleached
Hemp, 17 cts.....dis 10 %
Russian Hemp, 10 cts.....dis 10 %
Italian Hemp, 34 cts.....dis 10 %

SASH WEIGHTS.

Solid Eyes, in 500-lb. lots and over, dis 1 1/2 c. net

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Perry.....dis 20c. No. 15; No. 0, \$21.....dis 35 %

Enterprise Mfg. Co.....dis 25 %

Monarch.....dis 40 %

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Boynnton's Ice.....dis 25 %
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Disston's Mill.....dis 40 %
Disston's Cross Cut.....dis 40 %
Disston's Hand, Panel, Rip, &c.....dis 20 %
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Hubbard, Bakewell & Co. Cross Cut.....30c. ft.
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Hubbard, Bakewell & Co., Mill Saws.....dis 40 & 5 %
Peace Circular and Mill.....dis 40 %
Peace Hand, Panel and Rip.....dis 15 %
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Peace Band Saws, all widths.....dis 10 %
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Griffin's Hack Saws and Blades.....dis 30 %

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Saw Rods.....dis 10 %

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Stillman's Imitation.....dis 10 %
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Leach's.....No. 0, \$8.00; No. 1, \$15; dis 10 %
Hammer, Hotchkiss.....dis 10 %
Aiken's Genuine.....dis 10 %
Aiken's Imitation.....dis 10 %
Disston's.....dis 10 %
Morrill's.....No. 1, \$15; No. 5, \$25; dis 35 & 10 %

SCALES.

Hatch, Counter, No. 171.....dis 42, dis 37 1/2 & 10 %
Hatch, Tem. No. 161.....dis 42, dis 37 1/2 & 10 %
Union Platform, Keystone.....dis 45 %
Chicago Scale Co.....Special dis 20 %
Forsyth Scale Co.....dis 45 %
Howe's.....dis 40 %
Chatillon's Grocers'.....dis 40 %
Chatillon's Eureka.....dis 45 %
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Family Favorite.....dis 30 %
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Adjust. Box Scraper (S. R. & L. Co.) \$6.50, dis 20 & 10 %
Box, 1 Handle.....dis 10 %
Box, 2 Handle.....dis 10 %
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Stanley Rule & Level Co's. Black Hdl's.....dis 40 & 10 %
Ratchet.....dis 33 1/2 %
Clark's Patent.....dis 25 %
Shepardson.....dis 25 %

SCREWS.

Flat Head Iron, A. S. Co's list, Jan. 1, '85, dis 80 & 5 %
Round Head Iron.....dis 75 & 10 %
Flat Head Brass.....dis 10 %
Round Head Brass.....dis 75 %
Flat Head Blue, add 2 1/2 % to net of invoice.
Brass and Silver Capped.....dis 40 %
Japanned, list of Plain Screws.....dis 72 1/2 %
Coach, Patent Gimlet Point.....dis 75 %
Coach, Common or Lag.....dis 60 & 10 & 10 %
Bed.....dis 10 %
Machine, Flat Head, Iron.....dis 55 %
Machine, Round Head, Iron.....dis 50 %
Bench, Iron.....dis 50 & 10 %
Bench, Wood, Beach.....dis 30, dis 10 %
Bench, Wood, Hickory.....dis 20 & 10 %
Hand, Wood.....dis 20 & 10 %
Hand Rail, Sargent's.....dis 60 & 10 %
Hand Rail, Humason, Beckley & Co.'s.....dis 40 & 10 %
Hand Rail, Am. Screw Co., list Jan. 1, '81.....dis 70 %
Jack (Wilson's).....dis 25 %

SCREEN FRAMES AND FIXTURES.

Standard Window Screens No. 1, \$2.40; 2, \$5
Door No. 5, \$15; dis 40 & 10 %
Window Corner Irons, No. 3, doz. \$18, \$2
Door No. 6, \$2
Door Latches, per dozen, \$3.60.....dis 50 %
Porter's Patent Window and Door Screen Frames:
PER DOZ. SETS.
In. Im. Blk.
White. Walnut.
No. 20.....\$2.75 \$3.25
No. 21.....2.45 4.00
No. 22.....2.50 6.75
No. 23.....6.00 7.50
No. 30.....9.00 11.00

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No. 0. Corners and Sticks complete for a
three-foot window, per doz sets.....\$4
No. 1. Set for Window, per doz sets Bronze,
\$2.40; Nickel, \$5.02
No. 1 1/2. " " per doz sets, Bronze,
\$3.25; Nickel, \$7.50
No. 4. " " per doz sets, Bronze,
\$4.00; Nickel, \$8.00
No. 1/2. " " or door, per doz sets,
Bronze, \$1.20; Nickel, \$3.00
No. 4 1/2. " " or door, per doz sets,
Bronze, \$2.00; Nickel, \$4.00
No. 2 1/2. " " Door, per doz sets, Bronze,
\$6.75; Nickel, \$15.00
No. 3. " " per doz sets, Bronze,
\$12.00; Nickel, \$24.00

SHEARS AND SCISSORS.

American (Cast) Iron.....dis 70 & 10 %
Pruning.....see Pruning Hooks and Shears
Harnard's Lamp Trimmers.....dis 40 %
Tinner's.....dis 15 %
Massachusetts.....dis 80 & 10 %
Seymour's.....dis 60 & 10 %
Jersey Shears.....dis 80 %
J. Wiss & Son, Nickel, 50 & 5 %; Japanned, 60 & 5 %

SHEAVES.

Sliding Door, M. W. & Co., List.....dis 45 & 2 %
Sliding Door, R. & E. list.....dis 60 & 10 & 2 %
Sliding Door, Patent Roller.....dis 60 & 10 & 2 %
Sliding Door, Pt. Roller.....dis 60 & 10 & 2 %
Sliding Door, Russell's Anti-Friction.....dis 60 & 10 & 2 %

Also see Hangers.

SHOVELS AND SPADES.

Ames, New List, July 1, 1882.....dis 15 %
Griffiths.....dis 50 & 5 %
Remington's (Lowman's Patent).....dis 30 %
Rowland's.....dis 60 %
Kimball's.....dis 35 %
Lippincott, new list.....dis 20 %
Hussy, Bins & Co.....dis 15 %

SPOKE TRIMMERS.

Bonney's.....dis 10, dis 40 & 5 %
Stearns'.....dis 10, dis 20 & 10 %
Ives'.....No. 1, \$15; No. 2, \$12 per doz, dis 55 & 10 %
Douglass'.....dis 10, dis 40 %

SILVER PLATED WARE.

Wm. Rogers Manf. Co.....dis 50, 58 & 5 %
Holmes, Booth & Hayden.....dis 40 & 10 & 5 %
Brown Bros.....dis 40 & 10 & 5 %
Wallace's Steel Silver Plated.....dis 33 1/2 & 10 %
Rogers Bros 1847.....dis 50 %
C. Rogers & Bro.....dis 40, 10 & 5 %

SILVER PLATED HOLLOW WARE.

Wm. Rogers Manf. Co.....dis 40, 15 & 5 %
Meriden Britannia Co.....dis 33 1/2 %

SPOONS.

Britannia.....dis 60 & 10 %
Tinned, Iron, Table and Tea.....dis 65 %
Tinned Iron Basting.....dis 65 %
German Silver.....dis 40 %

STONE.

Hindustani No. 1, 3c.; Axe, 8c.....net
Sand Stone.....dis 33 1/2 & 10 %
Washita Stone, No. 1, 1 lb., 16c. net
Washita Stone, Slips.....No. 1, 1 lb., 45c. net
Arkansas.....\$1.50 per lb. net

SQUARES.

Steel.....dis 50 %; full cases, dis 50 & 10 %
Iron.....dis 50 %; full cases, dis 50 & 10 %
Nickel Plated.....add \$2.50 & 1/4 per doz net.
Try Square and T Bevels.....dis 50 & 10 %
Disston's Try Square and T Bevels.....dis 40 %

TACKS, BRADS, & C.

New List, Sept. 1, 1882.

Tinned Swedes Tacks.....dis 50 %
Tinned American Tacks.....dis 50 %
Swedes Tacks, all kinds.....dis 50 %
American Cut Tacks.....dis 50 %
Copper Tacks and Nails.....dis 50 %
Hungarian Nails.....dis 35 %
Gimp and Lace Tacks.....dis 30 %
Gimp and Lace Tacks, Tinned.....dis 30 %
Finishing Nails.....dis 40 %
Trunk and Clout Nails.....dis 30 %
Common and Patent Brads.....dis 30 %
Basket Nails.....dis 30 %
Brush Tacks.....dis 20 %
Leathered Carpet Tacks.....dis 20 %
Cigar Box Nails.....dis 40 %
Chair Nails.....dis 30 %
Double-pointed Tacks.....dis 70 & 10 %

TAP BORERS.

Common and King.....dis 20 %
Ives' Tap Borer.....dis 15 & 10 %
Enterprise Mfg. Co.....dis 25 %

TOBACCO CUTTERS.

Enterprise Mfg. Co (Champion).....dis 25 %
Wood Bottom.....dis 40 & 5 %
All Iron.....dis 40 & 5 %
Wilson.....dis 35 %

THERMOMETERS.

Tin Case.....dis 75 & 10 %
Storm Glasses.....\$3.25 per doz.

TOE CALKS.

Winsted.....dis 10 %

TRAPS.

Game, Newhouse.....dis 35 %
Game, Oneida Pattern.....dis 60 & 10 %
Game, Blake's Patent.....dis 40 & 10 %
Mouse, Wood, Choker.....dis 10 %
Mouse, Round Wire.....dis 10 %
Mouse, Wire.....dis 10 %
Mouse, Catch-em-alive.....dis 10 %
Cyclon Mouse.....dis 75 cts.
Ideal Mouse.....dis 10 %
Rat, "Decoy".....dis 10 %
Delusion Mouse, per doz.....\$1.50

TROWELS.

Lothrop's Brick and Plastering.....dis 25 %
Reed's Brick and Plastering.....dis 15 %
Disston's Brick and Plastering.....dis 20 %
Clement & Maynard's.....dis 20 %
Worral's Brick.....dis 20 %
Brades & Walby's.....dis 20 %
Garden.....dis 55 %

TRUCKS (WAREHOUSE, & C.)

Handy Truck.....\$2.50 net
Penfield Block Co.'s list, 1882.....dis 35 %
Peerless, with Cogs, No. 3.....54.00
Peerless, with Cogs, No. 4.....66.00
Eureka, No. 2.....dis 42.00

VISES.

Solid Box—Wilson's.....dis 50 %
Trenton.....dis 45 %
Iron City Tool Works.....dis 50 %
Bench—Wilson's.....dis 45 %
Trenton.....dis 45 %
Parker's.....dis 25 %
Prentiss.....dis 25 %
Bonney's.....dis 35 %
Well Wheels.....dis 60 & 10 & 10 %

WIRE.

Brass and Copper, list of Jan. 17, 1884.....dis 15 %
Bright and Annealed.....dis 10 %
Bright and Annealed.....Nos. 19 to 26, dis 60 & 10 %
Bright and Annealed.....Nos. 27 to 36, dis 70 %
Copper.....dis 50 %
Galvanized, Nos. 0 to 18.....Market list dis 40 %
Tinned, Nos. 0 to 18.....dis 60 %
Tinned Broom Wire, Nos. 18 to 25.....dis 60 %
Annealed Fence, Nos. 8 & 9.....dis 55 %
Annealed Grape, Nos. 10 to 14.....dis 50 & 10 %
Fence Staples, Galvanized.....dis 70 & 7 1/2 %
Japanned Barb Fence.....dis 60 %
Galvanized Barb Fence.....dis 60 %
Buck 7 horn Galvanized.....dis 60 %
Picture Wire.....dis 40 %
Clothes Line Wire, Galvanized.....dis 75 %
Wire Cloth, green, drab and black.....dis 75 %

WRINGERS.

American Adjustable.....dis 45 %
Baxter's Adjustable "S," list Jan., 1880.....dis 20 & 5 %
Baxter's Diagonal.....dis 20 & 5 %
Coe's Genuine.....dis 60 %
Coe's "Mechanics".....dis 60 & 10 %
Coe's Pattern, Malleable.....dis 75 %
Coe's Pattern, Wrought.....dis 60 & 10 %
Girard Standard.....dis 50 & 10 %
Girard Agl.....dis 60 & 10 %
Always Ready.....\$9.00—25 %

WRINGERS.

Universal, XX, No. 2 1/2.....36.00
Universal, XX, No. 2.....42.00
Universal, XX, No. 1 1/2.....51.00
Universal, XX, No. 1.....60.00
Universal, XX, No. 8.....10.75
Universal, XX, No. 12.....20.25
Universal, XX, No. 18.....22.75
Universal, XX, No. 22.....30.25
Peerless, no Cogs, No. 1.....42.00
Peerless, with Cogs, No. 2 1/2.....45.00
Peerless, with Cogs, No. 2.....48.00

MISCELLANEOUS.

"Diamond" Vegetable Grater.....\$5.00 per doz., 10 %
Rotary Knife Potato Parer.....\$18.00 per doz., net
Metallic Shingles.....\$5.50 and \$6.50 per square.
Hopper Cherry Seeders.....\$5.00 per doz, net

BRASS.

ROLL AND SHEET BRASS.

Brown & Sharpe's Gauge the Standard.
New List, Jan. 17, 1884.
Dis 25 %

COMMON HIGH BRASS.

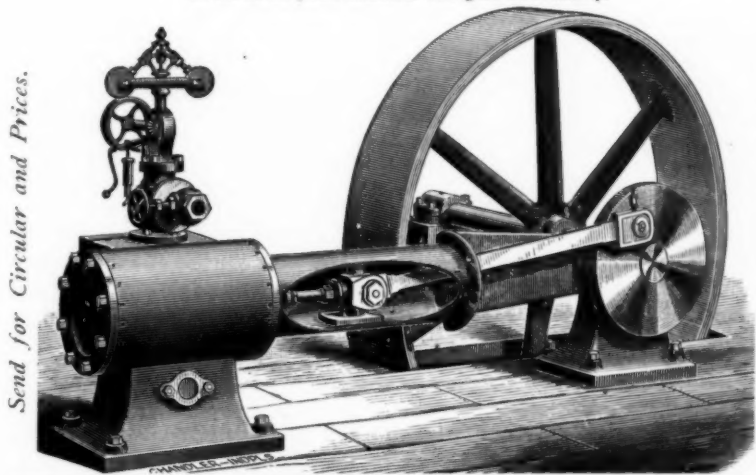
Wider than 1 1/2 in. and including.	2	3	4	5	6	7	8	10	12	14	16	18	20
To No. 20, inclusive.	.21	.22	.23	.25	.27	.29							
Nos. 21, 22, 23 and 24.	.22	.23	.24	.26	.28	.30							
Nos. 25 and 26.	.23 1/2	.24 1/2	.25 1/2	.27	.29	.31							
Nos. 27 and 28.	.24	.25	.26	.28	.30	.32							
Add 9 cts. per lb. for sheets cut to particular widths and lengths.													
Add 1/2 c. per lb. additional on each number thinner than No. 28 to 38 inclusive.													
Brass thinner than No. 38 is Platers' Brass.													
at.....													
Printers' rules.....													
Printers' Sheets and Plates cut to particular sizes and lengths to No. 20, inclusive.....													
Brazing, Spinning and Spring Brass, one cent more than common High Brass.													
Low Brass four cts. per lb. more than common High Brass.													

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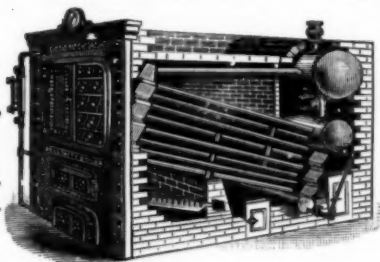
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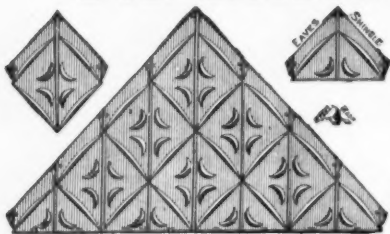
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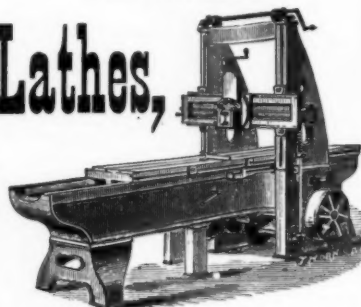
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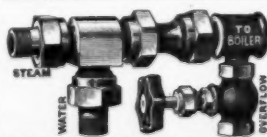
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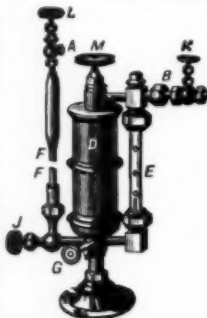
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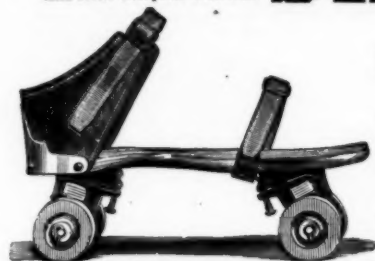
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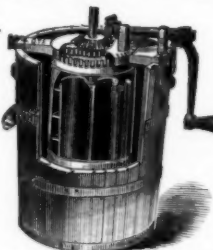
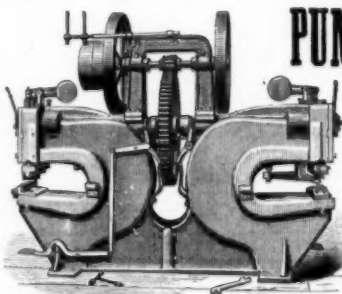
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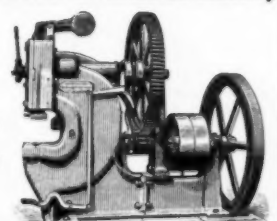
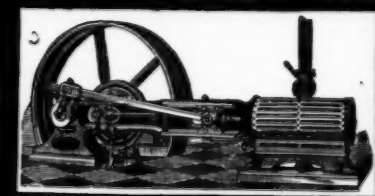
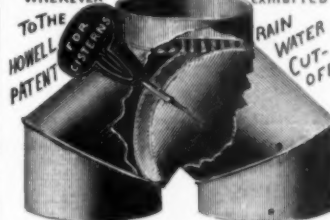
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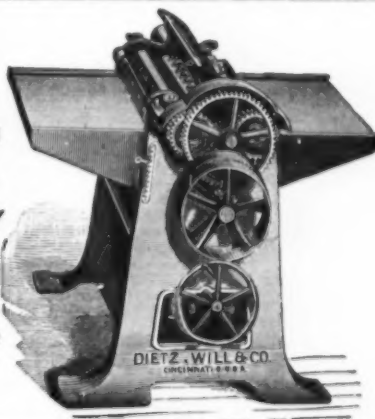
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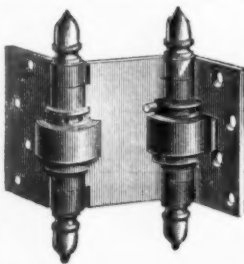
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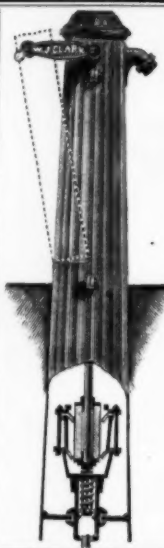
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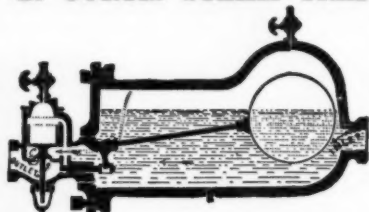
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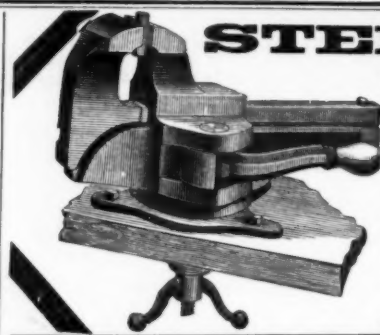
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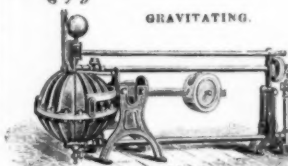
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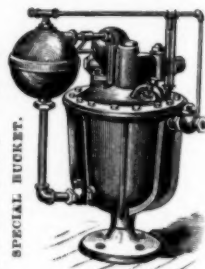


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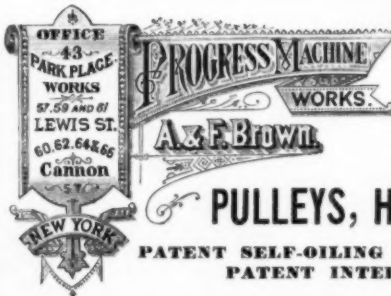


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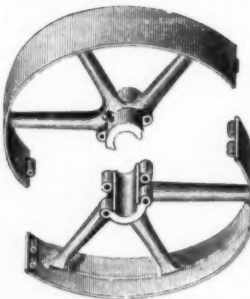
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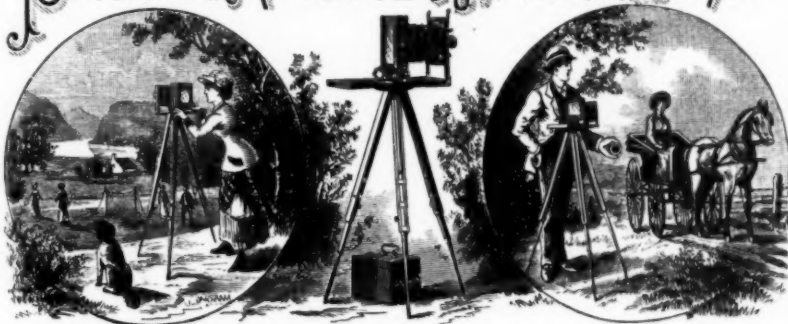
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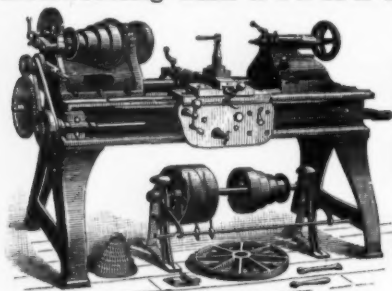
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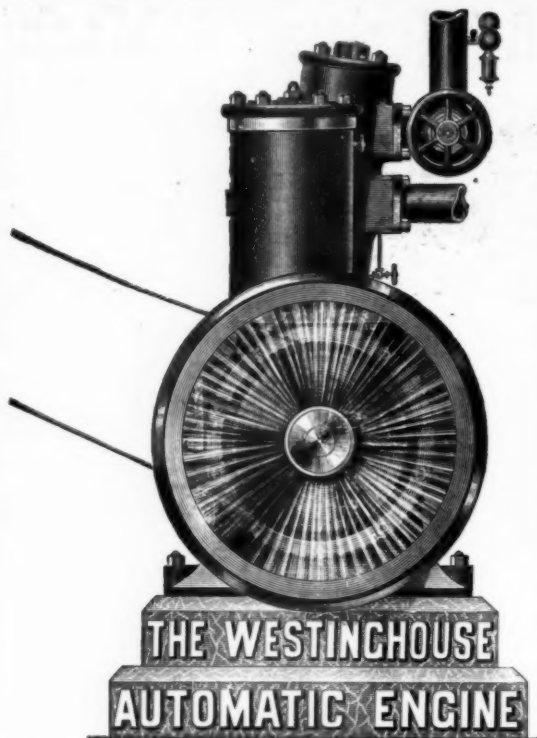
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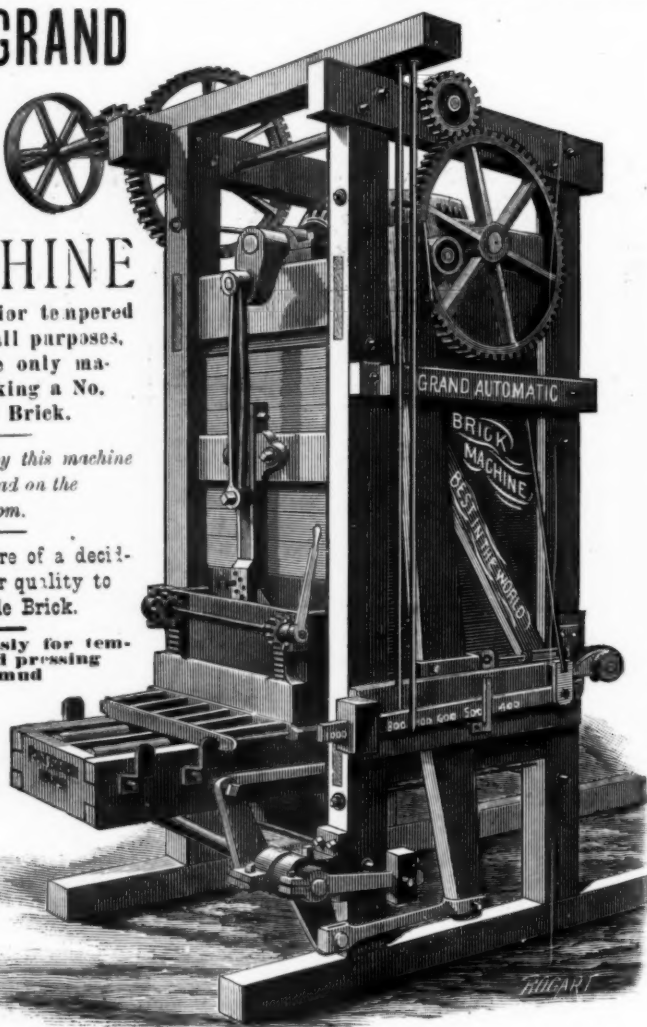
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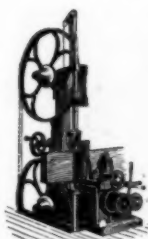


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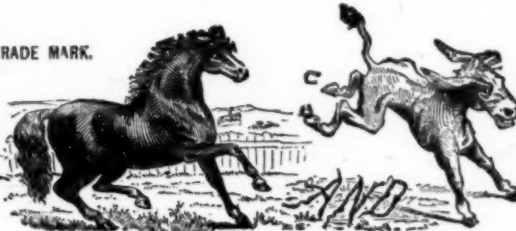


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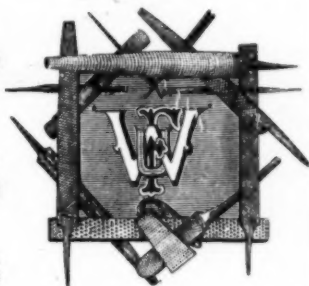
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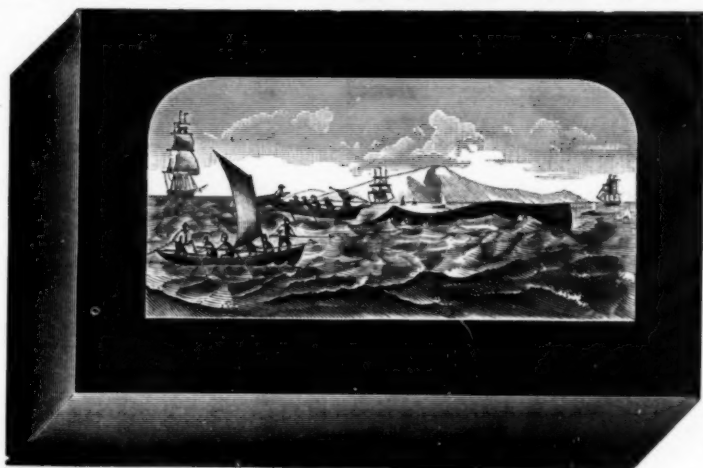
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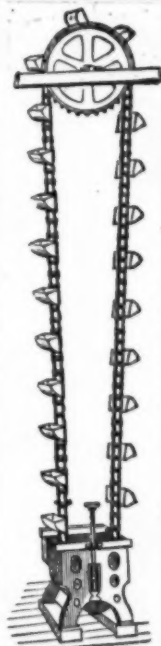
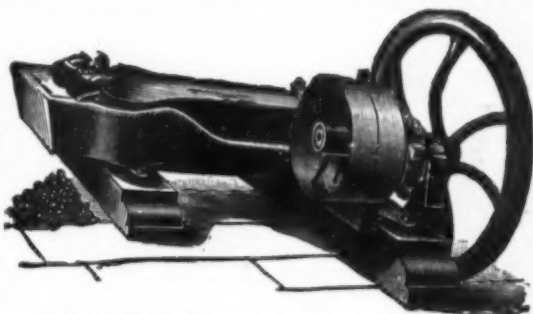
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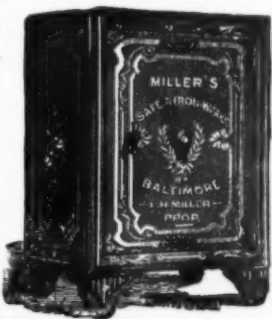
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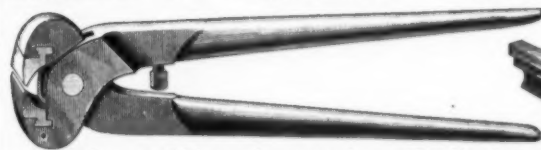
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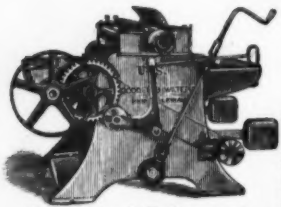
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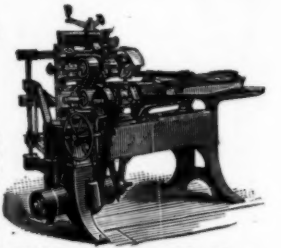
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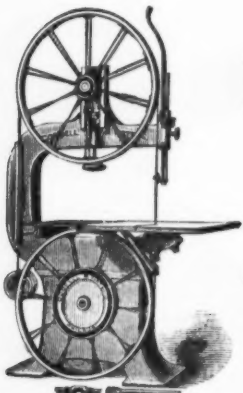
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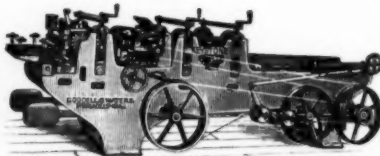
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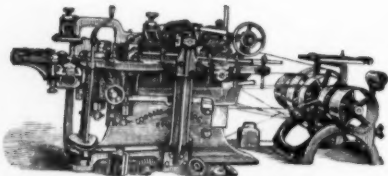


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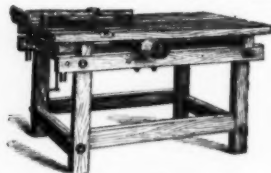
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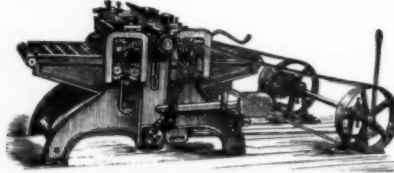
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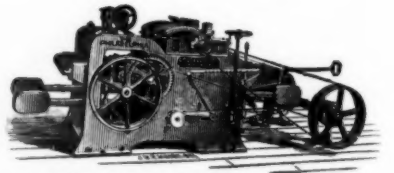
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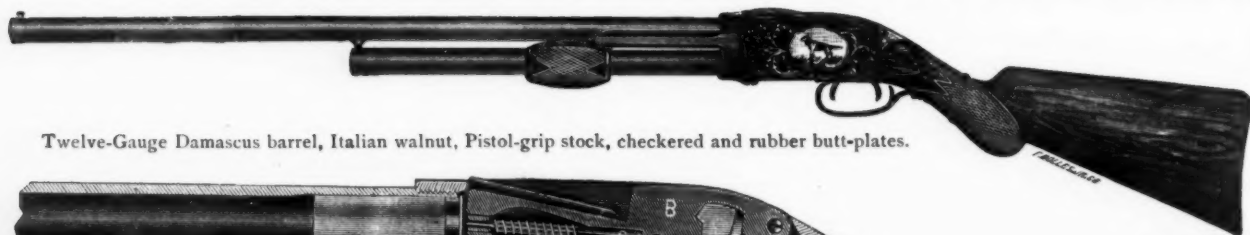
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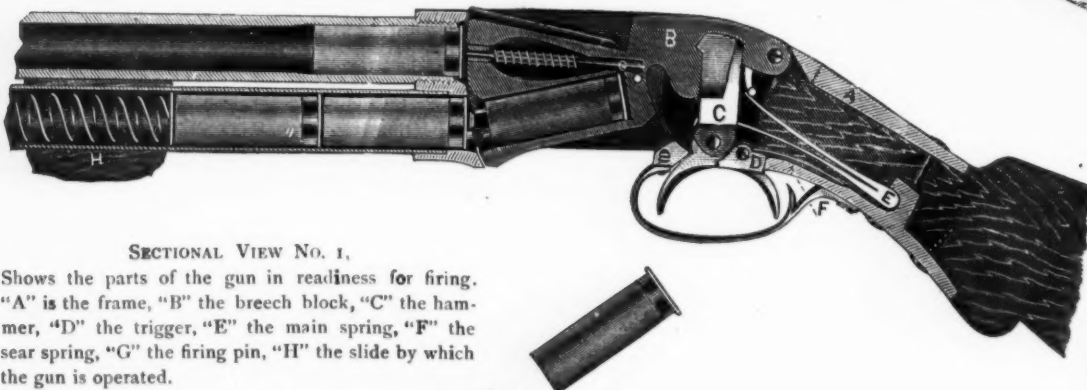
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SECTIONAL VIEW No. 1.

Shows the parts of the gun in readiness for firing. "A" is the frame, "B" the breech block, "C" the hammer, "D" the trigger, "E" the main spring, "F" the sear spring, "G" the firing pin, "H" the slide by which the gun is operated.



SECTIONAL VIEW No. 2.

Shows the slide drawn back, the breech open and a cartridge in the breech block in position to be carried into the barrel. The hammer "C" has an extension downward within the guard, which enables the shooter to cock and uncock the gun at will, and also shows whether the gun is cocked. When the hammer is let down it adjusts itself to the safety position. When operated by the slide it is self-cocking, so that in rapid firing the gun need not be taken from the shoulder.

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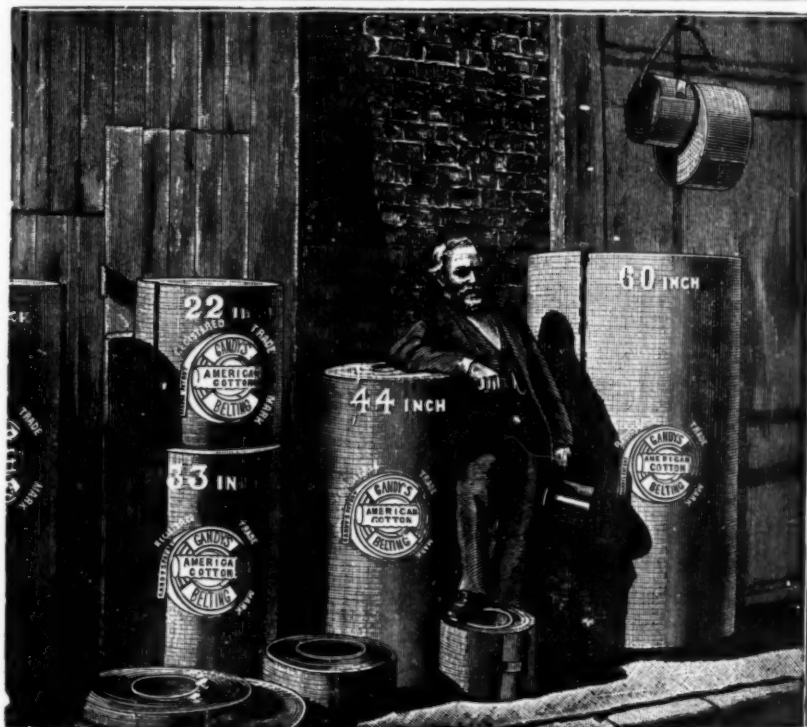
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